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A Cross-Cultural Study of Infant Attachment Patterns in Korea and the U.S.: Associations among Infant Temperament, Maternal Personality, Separation Anxiety and Depression

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A Cross-Cultural Study of Infant Attachment Patterns in Korea and the U.S.: Associations among Infant Temperament, Maternal Personality, Separation Anxiety and Depression

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This study examined differences in the distribution of attachment classifications between Eastern and Western cultures by comparing the behavior of 12-18 month old infants and their mothers in Korea (N = 87) and the U.S. (N =113) during the Strange Situation. Finding that the distribution of secure vs. insecure infants in Korea was similar to the global distribution provided further evidence for the validity of the Situation Situation in Eastern cultures. However, compared with Western cultures, as similar results from the studies in other Eastern cultures of Japan and Indonesia, fewer babies were classified as avoidant. Moreover, Korean infants and their mothers during the Strange Situation showed different behaviors, compared with the behaviors of American

babies and their mothers. Specifically, Korean infants showed less proximity and contact maintaining behaviors. These behaviors were related to behaviors of Korean mothers and infants at the reunion of the strange situation. Compared with the Austin sample, at the reunion, Korean mothers immediately approached their babies immediately and stayed on the floor and interact with them during the whole reunion episode. Moreover, Korean infants tended to less approach when they were united. These findings are discussed with respect to culture differences in caregiving.

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Introduction

Until now, studies of infant-caregiver attachment relationships have been mainly conducted in Western cultures and few attachment studies have been published in Eastern culture. The limited few have been conducted in Japan and Indonesia (Takahashi, 1986; Zevalkink, Riksen-Walraven, & Van Lieshout, 1999). When infant attachment classifications have been compared in Western and Eastern cultures, infants classified as secure vs. insecure have shown similar distributions (Lamb, Thomson, Gardner, & Charnov, 1985; Takahashi, 1986; Van Ijzendoorn & Kroonenberg, 1988; Zevalkink et al., 1999). However, the percentage of infants classified as avoidant vs. resistant has varied. Particularly, in Eastern cultures, very few avoidant and more resistant infants have been classified (Takahashi, 1986; Zevalkink et al., 1999). However, considering the relative lack of attachment studies in Eastern cultures, it is hard to discuss whether or not this variance is due to caregiving characteristics in Eastern cultures. Moreover, a simple comparison based on attachment distributions cannot provide sufficient information to discuss the variance in the distribution of avoidant vs. resistant infants in Western and Eastern cultures. Therefore, this study that compares behaviors of infants and mothers in Korea and the U.S. during the Strange Situation will provide further insight into the cross-cultural validity of the Strange Situation procedure in Eastern culture.

In order to examine the cross-cultural validity of the Strange Situation procedure and variables related to attachment security, three research questions will be addressed. First, is the distribution of attachment patterns in Korea similar to that of the U.S.? Cultural differences in parenting styles may explain the cross-cultural differences in the

distribution of avoidant and resistant attachment patterns. Whereas an avoidant infant attachment pattern is thought to be caused by a parenting style of having been ignored when distressed, resistant attachment patterns are rooted in caregiving behaviors that are inconsistent and interfere with the baby's needs. The concept of *amae* in Japan, emphasizing oneness and relatedness between mother and child, may help explain why Japanese infants are more likely to form a resistant attachment relationship and less likely to be classified as avoidant. In such cultures, it is rare that the baby's needs would be ignored. Moreover, Japanese infants experience less separation in early childhood due to the influence of the concept of *amae* (Rothbaum & Kakinuma, 2004). Therefore, Japanese infants may be more distressed by separation experiences from their mothers.

Similar to the results of studies Japan, it is expected that the percentage of babies classified as avoidant and resistant in Korea will be similar to that found in Japan due to the influence of the Korean concept of maternal *dew,* staying close to and indulging one's baby (Kim & Choi, 1994). Due to the influence of the key concept relevant to parenting, Korean mothers are viewed as ultimately responsible for their infants' well-being, although other people may help with childrearing. The belief that mothers should stay home with their children is still widespread in Korea (Kim, 1990) and there is a lack of daycare available (Spitz, 1988). Brandt (1971), an American anthropologist, observed that Korean mothers' attention is constantly on the baby "who remains in almost constant contact with her day and night".

Second, how are maternal and infant behaviors different during the Strange Situation in the U.S. and Korea? Due to the Korean parenting style, it is possible that the babies'

heightened distress increased the mothers' concerns about their babies during the Strange Situation, and in turn, the Korean mothers initiated contact quickly. Therefore, Korean infants would be less likely to seek proximity and maintain contact with the mother. Either the mothers' quick initiation of comfort or the babies' high level of distress may have prohibited the babies from seeking comfort from their mothers. Third, how are infant characteristics, such as infant temperament, and maternal characteristics, including maternal personality, maternal depression, and maternal separation anxiety, correlated with attachment security? Maternal separation anxiety and infant temperament are assessed because they are thought to take into consideration differences in caregiving quality in Korea and the U.S. The biggest difference in caregiving style between the U.S. and Korea is the frequency with which mothers separate from their infants. Experience of fewer separations may influence mothers' separation anxiety and infant temperament, and subsequently, contribute to differences in attachment distributions. Next, maternal personality and maternal depression were examined because these two variables are expected to be related to infant attachment in Korea in the same ways they have been related to infant attachment in the U.S.

Infant-mother attachment relationships have been studied extensively in the United States and Western Europe (Ainsworth, 1967; Grossmann, Grossmann, Spangler, Suess, & Unzner, 1985; Lamb et al, 1985; Sagi, Lamb, Lewkowicz, Shoham, Dvir, & Estes, 1985). The distribution of attachment classifications across these cultures has varied widely. For example, in the United States, the standard distribution across these attachment relationship categories is 22% avoidant, 65% secure, and 13% resistant

(Ainsworth et al., 1978). Compared to the distribution reported in the U.S., there are relatively high percentages of infants classified as avoidant in Germany (Grossmann et al, 1985) and a high proportion of infants classified as resistant in Israel (Sagi et al., 1985).

The few published studies that have used the Strange Situation in Asian cultures have taken place in either Japan or Indonesia. Western and Eastern cultures have shown roughly similar proportions of infants classified as secure vs. insecure (Van Ijzendoorn & Kroonenberg, 1988). However, the percentage of infants placed into one of the insecure groups, avoidant vs. resistent, in Western and Eastern cultures has varied widely. Unlike the Western cultures, most babies classified as insecure in Japan and Indonesia have been classified as resistant (Takahashi, 1986; Zevalkink et al., 1999). Specifically, the distribution of attachment classifications in Japan showed a relatively high proportion of resistant attachment patterns and no avoidant pattern, in comparison to the distribution in the U.S. (Miyake, Chen, & Campos, 1985; Takahsahi, 1986). Replicating this research in Korea, another Asian culture, will help clarify if these results are related to Eastern cultures.

To explain the reason that the Japan sample had a high percentage of infants classified as resistant, compared with Western culture, Takahashi (1986) has suggested that Japanese babies are likely to experience excessive distress during the separation episodes because Japanese babies experience less separation in early childhood. However, no study has systematically compared the amount of distress infants experience during the separation episodes. Hence, the present study also compared the infants' level of distress and mothers' and infants' tendency to stay close to each other during the Strange

Situation in the U.S. and Korea.

To further determine whether the Ainsworth's Strange Situation Procedure is a valid assessment of infant-caregiver attachment security in Korea, this study will also examine associations among infant attachment patterns, infant temperament, maternal separation anxiety and maternal depression. First, to examine the implication of less separation experience, separation anxiety and infant temperament variables will be explored. Specifically, Korean culture has a different parenting style than Western culture. The most notable difference is that separation situations at an early age are avoided in Korea. For example, Korean infants sleep with their parents until much later than Western infants. Western culture stresses early independence in infants, whereas Korean culture places less emphasis on early independence.

Considering these cultural differences in parenting styles, Korean infants may show different behaviors in the Strange Situation. Infants may be more likely to be distressed in a strange place and while interacting with a stranger. If so, many Korean infants may be classified as having a resistant attachment pattern. If more distress in Korean infants results in a higher proportion of infants classified as resistant, the validity of using the Strange Situation in Korea will be problematic. A higher level of distress may be related to the infant temperament and specifically, to a hesitancy to approach sudden or novel stimuli. Therefore, if Korean infants are more distressed in a strange room during an interaction with a stranger, they will have more difficulty settling with the caregiver during the reunion episode and will be classified as resistant. These infants are expected to have high scores on the scale of a hesitancy to approach sudden or novel stimuli.

Maternal separation anxiety is also likely to contribute to differences in the distribution of attachment patterns in the U.S. and Korea. Avoiding early separations may be related conceptually to maternal separation anxiety. However, when analyzing parenting in Korea, maternal separation anxiety should be carefully interpreted. According to the literature, mothers with high separation anxiety may have overindulgent, oversolicitous, overprotective, and insensitive parenting. McBride and Belsky (1988) found that American mothers of avoidant infants have higher levels of maternal separation anxiety than do the mothers of infants who show other attachment patterns. This association between avoidant attachment and separation anxiety is supported by several studies. Specifically, it was reported that mothers of avoidant infants have over-stimulating and intrusive interactions because they tend to overcompensate after their absence (Belsky, Rovine, & Taylor, 1984; Smith & Pederson, 1988). Putting these studies together, it is possible that mothers of avoidant infants are more likely to engage in over-stimulating and intrusive care to compensate for their anxiety about separation from their infants. Another possibility is that mothers of avoidant infants actually leave their babies for many more hours than do mothers of secure or resistant babies. As a result, these mothers experience greater concerning about how their babies are coping in their absence. Therefore, in the present study, mothers will be asked how many hours they are separated from their babies each week. It is expected that maternal separation anxiety will not be related to overindulgent, oversolicitous, overprotective, and insensitive parenting in Korea because Korean mothers simply avoid separating from their babies.

Examining maternal depression will also be helpful for clarifying correlates related to

Strange Situation in Korea, in that maternal depression has also been shown in many studies in the U.S. to contribute to attachment insecurity. Specifically, mothers who are depressed may experience helplessness, hostility, and mood swings resulting in a tendency to withdraw from their infants (Weissman, Paykel, & Klerman, 1972). Withdrawing from their infants may lead the infants to feel unprotected and afraid, resulting in insecure attachment. It is anticipated that maternal depression will relate in similar ways to infant attachment in Korea.

Moreover, association between maternal personality and infant attachment will be examined. Maternal personality has been known to influence parenting, and parenting is an important factor that determines infant attachment. Therefore, it is expected that maternal personality will relate in a similar way to infant attachment in Korea. Specifically, mothers with high levels of positive affectivity showed warmer and more supportive interactions with their infants (Mangelsdorf, Gunnar, Kestenbaum, Lang, & Andreas, 1990). In fact, in Belsky et al's study (1995), three traits among the Big Five dimensions of NEOPI were related to parenting. Specifically, neuroticism was associated with less adaptive parenting, and extraversion and agreeableness were related to more adaptive parenting.

Although research reporting that characteristics of the infant, like temperament, and characteristics of parents, like personality, are related to the development of attachment security have been studied in Western culture (Kochanska, Clark, & Goldman, 1997; Seifer, Schiller, Sameroff, Resnick, & Riordan, 1996), such studies are less known in Eastern culture. Only maternal sensitivity have been shown to strongly contribute to the

development of a secure attachment in both Western and Eastern (Ainsworth et al., 1978; Zevalkink et al., 1999). Therefore, studies regarding the variables related to infant attachment security will provide further information about the correlates of attachment in Eastern culture.

In sum, the present study will assess the cross-cultural validity of the Strange Situation in Korea by examining the distribution of infant attachment patterns and correlates of infant attachment security, including infant temperament, maternal personality and depression, and maternal separation anxiety. To do this, first, the principles of attachment theory as they pertain to infant attachment patterns will be reviewed. Next, the cross-cultural research in attachment will be reviewed, highlighting differences in the distributions of infant attachment patterns in Western and Eastern cultures. Finally, correlates of attachment security including infant temperament, maternal separation anxiety, maternal personality, and maternal depression will be examined.

Attachment Theory

Bowlby and Ainsworth were researchers who elaborated on infant-caregiver interaction in terms of survival behavior and psychological process. Bowlby (1951) proposed that infants promoted closeness with their caregivers through behaviors such as smiling, clinging and crying. This proximity seeking is considered as a basic biological function. Thereby, infants form internal working model that they use to organize affective experiences.

Bowlby (1969, 1973, 1982) defined internal working models as mental

representations that influence individuals' response to others and interpretations of others' behavior. The first internal working models about self and others are based on experiences through interactions with caregivers. That is, children who experience the caregiver as sensitive and responsive will develop a representation of the self as worthy of love and a representation of others as trustworthy, whereas children who experience the caregiver as unresponsive or rejecting will develop a representation of the self as unworthy of love and of others and as untrustworthy (Zeanah and Barton, 1989). Because these working models influence the individuals' interpretations about relationships, they are generally stable across the course of development.

Based on Bowlby's idea, Ainsworth developed a measurement called "The Strange Situation" to measure the quality of attachment between child and caregiver. The Strange Situation has been introduced as the most widely used and validated procedure for assessing the infants' attachment quality (Ainsworth et al., 1978). This procedure is based on behaviors systems such as attachment, exploration, and fear. The fear system is activated in dangers like unfamiliarity, sudden change of stimulation or environment, and being alone.

When infants feel fear, they show behaviors such as avoidance, withdrawal, or attack. That is, they increase distance from the feared object or eliminate it. Attachment behaviors are activated with fear behaviors in the same environment. Specifically, in the distressed environment, infants avoid the cause of distress, but seek to gain protection and safety. The exploratory system interconnects with different way with fear system and attachment system. Ainsworth observed that exploratory behaviors of secure infants

increased when they are with their mothers. On the other hand, exploratory behaviors of infants decreased when fear system or their attachment system is activated.

The Strange Situation procedure was designed to assess the effectiveness between the child and caregiver in regulating the child's distress aroused by the manipulated stressful environment, and the child's trust in the emotional and physical availability toward the caregiver. That is, the attachment, exploration, and fear system are activated and observed during the Strange Situation.

The Strange Situation is composed of eight 3-minuate episodes. In the strange situation, a parent and child are observed in repeated separation and reunion episodes in an unfamiliar room. During episode 1, an observer introduces a mother and child to an unfamiliar playroom with toys. In episode 2, the observer leaves the room, and the infant and mother become accustomed to the strange playroom.

During episode 3, a stranger comes into the room, and the infant continues to play with toys in the presence of the mother and stranger. In episode 4, the mother exits the room, and the stranger tries to interact with the infant. This separation episode activates the infant's fear and attachment systems with concern to the availability of the mother and causes exploratory behavior to decrease.

Episode 5 is the first reunion episode. In this episode, the mother returns to the room and the stranger leaves. Many infants greet the mothers and their exploratory behaviors increase again, after they realize the mother's availability. During episode 6, the mothers leave the infant alone. The strange situation and the mother's absence activites fear in the infant. Therefore, many infants show crying and anger because of the fear. In episode 7,

the stranger returns to the room and attempts to soothe the infant. Episode 8 is the second reunion episode. In this episode, infants usually seek proximity and contact with the mothers to gain a comfort.

Based on this procedure, Ainsworth and colleagues (1978) described three basic patterns of attachment based on four criteria: proximity-seeking behaviors, contact-maintaining behaviors, resistant behaviors, and avoidant behaviors. Proximity-seeking behavior measures if babies purposefully approach to gain contact from their mothers. Assessments of contact-maintenance, on the other hand, are based on how long babies maintain contact with their mothers and actively resist cessation of contact. Resistant behavior assesses signs of distress such as pouting, fussing, hitting, or kicking. Finally, avoidant behavior measures the avoidance of proximity and interaction with their mother (Ainsworth et al., 1978). These four scales helped determine each infant's overall attachment classification as well as subclassification.

Based on the four criteria, infants were assigned one of three overall attachment classifications: secure, avoidant, and resistant pattern (Ainsworth, et al, 1978). At the reunion, secure infants are responsive to their mother and explore the environment again. If distressed, they seek approach to their mother and are comforted by the proximity and contact with mothers. Avoidant infants avoid the mother and focus on the environment. They are less likely to cry during separation episodes; they failure to greet the mother and avoid approaches. Although resistant infants, like secure, seek proximity and contact with mothers on reunion, unlike secure infants, the resistant infants from the contact and comfort does not appear to reduce their distress. Even after gaining contact, resistent

babies continue to show signs of distress, for example, pouting, fussing, hitting, kicking or throwing toys. (Ainsworth et al., 1978).

In addition to these organized attachment patterns, a disorganized attachment pattern was more recently discovered (Main & Solomon, 1990). These infants showed a disoriented and incoherent strategy during the strange situation. Disorganized infants show mixed strategies of proximity-seeking, avoidant and resistant behaviors. That is, they lack an organized strategy. For example, these infants turn in circles during the approach to their parents. In the presence of their mothers, they also express apprehensiveness, falling huddled to the floor, putting their hands to their mouths with their shoulders hunched, or freezing all movements.

Each classification has subgroups. Examining subgroups is helpful in discussing cross-cultural validity in that some subgroups show mixed responses. Next, using the four behavioral scales infants in each of the three major attachment categories were also assigned a subclassification. According to Ainsworth et al. (1978), infants in the avoidant subgroup, A1, show conspicuous avoidance toward mothers, whereas infants in the avoidant subgroup, A2, show mixed responses to the mothers, with proximity behaviors and marked avoidance. Infants in the resistant subgroup, C1, show marked resistance toward mothers, whereas infants in the resistant subgroup, C2, show passivity. Compared to C1 infants, C2 infants tend to protest against being put down rather than resisting release.

Although secure infants in B1 and B2 greet or look at the mother when she returns, they are less likely to seek proximity and contact with their mothers than B3 and B4

infants. Therefore, B1 and B2 infants may exhibit some avoidant behavior in that they show less proximity and contact. However, their avoidant scores are not high enough to be classified as avoidant infants because they respond to their mothers' return and interact with her from a distance. In contrast with B3 infants, B4 secure infants may show some resistance to the mothers. Specifically, B4 infants show strong contact seeking behavior, but they are more preoccupied with mothers than B3 infants before they become engaged in play. If different distributions of attachment classification are due to cultural differences, it may be related to the fact that avoidant and resistant infants who are in subcategories on the borderline of a secure attachment pattern are classified as secure B1 or B2 and B4.

These attachment response patterns have been shown to be strongly associated with maternal sensitivity – the mothers' ability to appropriately respond to infant attachment goals or needs (Ainsworth et al., 1978). Sensitively mothered infants readily approach their mother for contact, are comforted and return to exploration. Insensitively mothered infants either avoid the mother or respond ambivalently.

Specifically, parents who have secure infants are more likely to respond to their signals promptly and with sensitivity. Avoidant infants are presumed to experience interactions with a cold and rejecting caregiver. Interfering, unpredictable, or inconsistent caregiving is related to infants' resistant attachment.

In addition, the child's affect and behavior during the repeated separation and reunion episodes are also influenced by child factor such as infant temperament, as well as maternal factor that influence maternal responsiveness (Goldsmith & Alansky, 1987;

Goldsmith, Bradshaw, & Reiser-Danner, 1986; Sroufe, 1985; Sroufe & Waters, 1997). These child factors and maternal factors will be discussed later.

Cross-cultural study of infant attachment patterns

From a cross-cultural point of view, the following research question is raised to discuss the validity issue. As compared with the distribution of attachment classifications in the U.S.A., does the distribution of attachment pattern in Korea show a similar distribution? To discuss this problem, studies about attachment pattern across diverse cultures will be reviewed.

Studies about attachment patterns between infants and mothers have been conducted in diverse countries with different cultures. However, differences in the distribution across cultures have led researchers to question the cross-cultural validity of the Strange Situation procedure (Lamb et al., 1985; Van Ijzendoorn & Kroonenberg, 1988). As mentioned earlier, the distribution of infant-mother attachment classifications varied across American and European cultures (Ainsworth, 1967; Ainsworth et al., 1978; Grossmann et al., 1985; Lamb et al., 1985; Sagi et al., 1985). Specifically, in the United States, the modal distribution across these categories is 22% avoidant, 65% secure, and 13% resistant attachment relationship (Ainsworth et al., 1978).

Compared to the distribution reported in the U.S., 22% of American infants were classified as avoidant, whereas 48% of German infants were given the same classification (Grossmann et al., 1985). Furthermore, 13% of American infants were classified as resistant, whereas 32% of Israel infants were given the same classification (Sagi et al., 1985). These findings implied cultural differences in caregiving. In Germany, the original

Bielefeld samples showed high avoidance. However, the distribution of attachment classifications in subsequent research with non-working mothers was similar to the ones reported in U.S. studies. In Israel, Sagi et al. (1985) studied attachment of communally sleeping kibbutz infants. They found that only 59% infants have secure attachment pattern, as compared with 65-70% of infants found in most studies. Furthermore, ambivalent relationships were overrepresented. They explained this difference through the unique characteristic of a collective upbringing. This argument was supported by their second study. They observed 23 mother-infant dyads with communal sleeping arrangements and 25 dyads with family-based sleeping. Only 48% of communally sleeping infants were securely attached to their mothers. In contrast with this, 80% of family-based sleeping infants were securely attached to their mothers.

In a cross-cultural study in Africa, True (1994) conducted the Strange Situation in the Dogon tribe of Mali (West Africa). The Dogon study included disorganized attachment with the classic A-B-C classification system. This study showed a high percentage of disorganized infants (23%), compared to the percentage in Western samples (15-20%). The percentage of secure infants in the sample was also high (69%) but none of the infants were classified as avoidant and few were classified as resistant (8%). When True forced the disorganized attachment coding system into their best fitting A, B or C attachment classification, the distribution was 88% secure, 12% resistant, and 0% avoidant.

True explained the difference between the ABC distribution in the US and Mali as due to cultural differences in caregiving. Because of high infant mortality, Dogon

mothers kept infants in close proximity almost all the time. Because of this characteristic, True explained that the Strange Situation may have been experienced as more highly stressful. The high stress may have forced the avoidant infants to seek proximity, and may have increased disorganized pattern.

The few studies that have used the Strange Situation in Asian cultures were conducted in Japan, Indonesia, and China and these studies have yielded mixed results. Compared to the distribution reported in the U.S., there were relatively high percentages of infants classified as resistant and no infants classified as avoidant in Japan (Miyake et al., 1985; Takahsahi, 1986). The distribution reported in Indonesia was similar to that of Japan (Takahashi, 1986; Zevalkink et al., 1999). However, the distribution of attachment classifications in China was similar to the ones reported in U.S. studies (Hu and Meng, 1996). These differences may have been caused by the procedural problem in assessing attachment or cultural differences in caregiving.

Procedural problems in the Japanese studies have led researchers to question the results. Specifically, Takahashi (1986) included only one separation episode and did not leave the child alone in the strange room. That is, only one separation episode was included and the episode in which the child is alone was omitted. Therefore, Takahashi based her classification of infants' attachment relationship on the first reunion episode (Episode 5). Moreover, although infants were highly distressed during the separation episode, the episode was not cut off. The original procedure assumes that infants have undergone mild distress. Under conditions of high stress, none of the infants including those who are secure can be easily calmed. Thus, the higher level of distress experienced

by the Japanese infants is likely to account for the high percentage classified as resistant.

This difference may also be associated with the caregiving style that avoids early separation with their children. Japanese infants were classified as C pattern because they cried without being comforted. They may be more likely to be distressed when left in strange situation, considering Ainsworth's procedure is based on mild distress.

In contrast with Japanese research, studies in China showed different results. Although a study conducted with Chinese Americans showed an increase in C pattern (Li-Repac, 1982), they showed a similar distribution in terms of avoidant classification, as that reported in U.S.A. However, Hu and Meng (1999) suggested a possible problem with the validity of the avoidant classification in Chinese research. They found that the avoidant infants didn't show stranger anxiety. They explained this difference by parenting style. The Chinese mothers' stress on independence in their infants as well as their reliance on nonparental caregivers may explain "indifferent attachment".

Finding that Chinese infants classified as avoidant did not show stranger anxiety is not consistent with Kagan's argument (1978) that Chinese infants feel more apprehensive toward strangers and the strange situation than Caucasian infants. They found that attachment is associated with mothers' involvement in the care of their infants. Mothers who have secure and avoidant infants worked outside the home everyday. However, mothers of avoidant infants were less involved than mothers of secure infants, and the grandparents played a larger role. In contrast with this, mothers who have resistant infants stayed at home with their babies.

Replicating the strange situation procedure to assess infant-caregiver attachment

quality in Korea, another Asian culture, may help clarify these mixed results. Korea has been influenced by Western cultures as society has become more global. Nevertheless, in Korean mothers rarely separate from their babies at an early age. Specifically, Korean infants sleep with their parents until a later age than Western infants. Whether this mixed cultural situation will yield similar attachment patterns or different attachment patterns remains to be seen.

Variables related to infant attachment

According to Bowlby(1969), individual differences in attachment patterns are caused by differences in the quality of parenting, or caregiving that infants receive. Considering that the parenting quality is related to mother's characteristics and infant's characteristics, studies about the association between them and attachment may contribute to determining the validity of the Strange Situation to assess attachment in Korea. If Korean infants show a different distribution of attachment pattern, what factors are related to the difference? The biggest difference in caregiving style between parents in U.S.A. and Korea is the prevalence of the separation situations experienced. Korean mothers avoid early separation from their infants. In this context, to examine the research problem, studies about association among attachment, separation anxiety and infant temperament will be reviewed.

Infant temperament and attachment

Temperament has been considered one of the most important predictors that influence the parent-child relationship (Chess & Thomas, 1996). Temperament is defined as relatively stable biologically-based traits influenced by heredity, maturation, and

experience (Rothbart, 1986). However, most temperament theorists, including the most biologically oriented theorists, Chess and Thomas, agree that experiences such as early psychosocial environment are related to the development of temperament (1996).

Until recently, the relative contribution of infant temperament to attachment has been controversial. On one end of the spectrum, some theorists have argued that temperament and attachment are orthogonal constructs (Sroufe, 1985). That is, temperament may influence aspects of behaviors but not the organization of attachment, or constitutional temperament can be completely transformed by a person's relationship history. Thus, its contribution to the assessment of infant attachment pattern is negligible. In contrast, some researchers argue that infant temperament is a significant contributor to determining resistant behavior or that measures of attachment are confused with measures of temperament (Kagan, 1982). Kagan (1982) argued that attachment classification is determined by the infant's proneness-to-distress temperament.

Kagan (1982,1984) speculated that temperamental dimensions, such as "vulnerability and " irritability", directly influence infants' behaviors as well as attachment patterns. Other studies also supported the association between infant irritability and resistance to interaction with mother in the Strange Situation (Crockenberg, 1981; Waters, Vaughn, & Egeland, 1980). Furthermore, a recent study reported that parental attachment was associated with their perceptions of their infants' temperament (Pesonen, Räikkönen, Keltikangas-Järvinen, Strandberg, & Jävenpää, 2003). Specifically, parental insecure attachment was associated with several infant temperament traits, including fear, distress to limitations, and negative reactivity.

In contrast, other studies found that certain infant behaviors in the Strange Situation are related to temperamental variability among infants, although temperament scores have not distinguished infants classified as secure from those classified as insecure (Belsky & Rovine, 1987; Egeland & Farber, 1984).

Connell and his colleagues (1988) also argued that temperamental and situational factors influence distress in the Strange Situation. The Strange Situation has been related to infants' reaction to novel environments, to an unfamiliar person, and to the stress of separation. That is, the Strange Situation assesses infants' strategies (e.g. proximity seeking, contact maintaining, avoidance, and resistance) for regulating distress and being soothed upon reunion with the mother after experiencing mild distress (e.g. separation from caregiver). Although the levels of infants' distress are not strongly related to attachment classification, it may influence behaviors or coping strategies on reunion that infants use. Infants who had high distress may be more likely to show proximity seeking and conflicted, ambivalent behavior coded as resistance (Connell & Thompson, 1986; Thompson & Lamb, 1984). Infants who are less distressed may exhibit less proximity seeking and less resistance behaviors coded as avoidance.

Many empirical studies supported this argument. Specifically, infants who have high negative emotionality were more distressed in the Strange Situation (Belsky & Rovine, 1987; Gunnar, Mangelsdorf, Larson, & Hertsgaard, 1989; Rothbart & Bates, 1998; Thompson & Lamb, 1984). Weber, Levitt, and Clarke (1986) also found that infant difficulty was correlated with Strange Situation resistance to the mother and the stranger. Children prone to negative emotionality may feel more upset under stress. In turn, they

may seek proximity to the mother and tend to be resistant or angry. Connell (1985) and Thompson et al. (1988) found that infants' level of temperamental fear also influenced on their behaviors in the Strange Situation. Fear predicted children's distress, with the more fearful children becoming more distressed by the separations. Therefore, distress influenced children's behaviors upon reunions.

From a different perspective, maternal behaviors thought to influence attachment may influence the development of temperament. In this view, the mother's caregiving style may influence the child's expression of temperament and this may influence the attachment relationship between infants and mothers. Many studies have been reported that perceived child temperaments are associated with the quality of parenting in many ways. This association may predict the parent-child attachment relationship. Specifically, perceived child temperaments from parents were associated with maternal responsiveness (Pettit & Bates, 1989), maternal hostile parenting (Katainen, Raikkonen, & Keltikangas-Jarvinen, 1997), and physical contact, soothing, involvement (Van den Boom & Hoeksma, 1994).

Comparing the relation between temperament and infant attachment in the U.S. and Korea may shed light on the validity of the Strange Situation procedure in Korea. Korean mothers avoid early separation from their infants. This caregiving style may be related to infants' distress and latency to approach sudden or novel stimuli. Specifically, infants may be more distressed in a strange room and during interactions with a stranger. High levels of such distress may increase the likelihood that infants will be classified as having an insecure-resistant attachment pattern.

Maternal personality and attachment

Little is known about the associations between maternal personality and infant attachment, even though maternal personality has been shown to contribute to infant attachment security. Most studies related to maternal personality have dealt with association between maternal personality and caregiving characteristics. Most studies using the Big Five dimensions of the NEOPI have reported that two of the five traits, Neuroticism and Extraversion, have associations with caregiving characteristics.

Specifically, Belsky, Crnic, and Woodworth (1995) found that neuroticism was associated with less adaptive parenting which includes less sensitive, less affectively positive, and less stimulating parental behaviors, whereas extraversion and agreeableness were associated with adaptive parenting. These associations have been found in other studies. Mangelsdorf et al. (1990) reported that mothers who reported high extraversion showed more sensitive parenting. Whereas Belsky and Barends (2002) reported that mothers who reported high Neuroticism showed insensitive and coercive parenting, Clark, Kochanska, & Ready (2000) also found that high Neuroticism was associated with power-assertive discipline and low responsiveness.

Considering that maternal warmth and responsiveness have been known to be related to the development of a secure attachment in infants (Ainsworth et al., 1978), maternal personality characteristics related to warmth and sensitivity are also expected to be related to infant attachment security. For example, Kochanska and her colleagues (1997) found this link. Specifically, maternal personality influences maternal parenting behavior and, subsequently, infant attachment.

Some studies found a direct association between maternal personality and attachment security. Specifically, Egeland and Farber found that mothers of infants who changed from a secure to an insecure attachment scored high on aggression and suspiciousness and low on social desirability. Izard, Haynes, Chisholm, & Bask (1991) found that mothers who have secure infants showed more positive emotion, more nurturance, more empathy, and less maternal negative emotions.

In addition, some studies have found that goodness of fit between infant temperament and maternal personality rather than a direct effect of maternal personality only was related to infant attachment security. Specifically, infant proneness-to-distress temperament predicted insecure attachment, but the prediction is only for infants whose mothers showed high scores on the personality involving "constraint" (rigidity, traditionalism, and low risk-taking) (Mangelsdorf et al., 1990).

Maternal separation anxiety and attachment

In addition to infant temperament, maternal separation anxiety may be considered a factor related to the different distributions of attachment. Maternal separation anxiety is defined as anxiety or concern that mothers feel when they experience separation from their children. Specifically, separation responses are related to anxiety about being apart from significant other, sadness about existing loss, and anger or frustration about the inability to maintain in close proximity (Hock, McBride, & Gnezda, 1989). This maternal separation anxiety has been identified as one of the most important psychological construct to influence maternal behavior (Hock et al., 1989, McBride & Belsky, 1988). Responses to actual separation events or threats of separation relate to relevant

characteristics of important relationships such as the level of trust or attachment.

Hock and her colleagues (1989) identified several components of maternal separation anxiety. Specifically, they found that parental separation anxiety could be consisted of three factors; Maternal Separation Anxiety, Perception of Separation Effects on the Child, and Employment-Related Separation Concern. According to Hock et al. (1989), Maternal anxiety is a global measurement representing a mother's reports of anxiety and discomfort during separation from her children. Perception of Separation Effects on the Child is defined as anxiety about the child's well-being during the mother's absence. Employment-related Separation Concern signifies concerns over separation due to work/career demands. Theoretically, high levels of maternal separation anxiety may contribute to dysfunctional mother-child relationships. Mothers with high separation anxiety may provide overindulgent, oversolicitous, overprotective, and insensitive parenting to their infants.

McBride and Belsky (1988) found that American mothers of avoidant infants have higher levels of maternal separation anxiety than the mothers of infants with other attachment patterns. This association between avoidant attachment and separation anxiety is supported by some other studies. Specifically, it was reported that mothers of avoidant infants have over-stimulating and intrusive interactions because they tend to overcompensate after their absence (Belsky et al., 1984; Smith & Pederson, 1988). Putting these studies together, it is possible that mothers of avoidant infants are more likely to engage in over-stimulating and intrusive care to compensate for their anxiety about separation from their infants. Another possibility is that mothers of avoidant infants

actually leave their babies for many more hours than do mothers of secure or resistant babies. As a result, these mothers experience greater concerning about how their babies are coping in their absence. Therefore, in the present study, mothers will be asked how may hours they are separated from their babies in each week.

In Korean parenting style, the association between parenting style and maternal separation anxiety should be carefully interpreted. According to the literature, mothers with high separation anxiety may engage in overindulgent, overprotective, over-stimulating and intrusive interaction and insensitive behaviors because they tend to overcompensate for their absence. However, maternal separation anxiety is not likely to be related to overindulgent, oversolicitous, overprotective, and insensitive parenting in Korea. Korean mothers just avoid early separation because they are worried about whether their infants will be distressed in novel environments. Therefore, they are worried about their absence but since they do not separate from their infants, and they don't tend to overcompensate about their absence. From this point of view, in Korea, maternal separation anxiety may be related to resistant attachment pattern rather than avoidant attachment pattern.

Some studies have found that maternal separation anxiety is related to other maternal characteristics. Parental perception of child temperament may be one factor related to maternal separation anxiety (Lerner & Galambos, 1986, Hock & Schirtzinger, 1992). Specifically, mothers who perceive their infants as difficult or unadaptable may not trust the caring capacity of other adults; they may feel that their infants need them more (Lerner & Galambos, 1986). Therefore, they will report high separation anxiety. Fein and

colleagues (1993) also found that mothers' perception as negative reactivity is associated with maternal separation anxiety. This association between maternal separation anxiety and maternal perception of child temperament may also apply to Korean families. Mothers' perception that their infants will be distressed in novel environments may influence maternal separation anxiety such as avoidance of early separation. This association may account for the different distribution of attachment pattern in Korea and U.S.

Maternal depression and attachment

The third research question in the paper is whether the correlates that are related to infant attachment in U.S. are also related to infant attachment in Korea? To examine this question, the role of maternal depression in the development of infant-caregiver attachment relationship will be discussed.

According to Bowlby (1969, 1982), loss of an attachment figure can result in insecure attachment. Considering depressed caregiver's parenting characteristics, infants who have depressed caregivers may feel a loss of attachment from caregivers. Specifically, a depressed mother may withdraw her attention and affection from the infant in her parenting behaviors. These parenting characteristics may be caused from symptoms of depression such as low mood, helplessness, and hostility (Weissman et al, 1972). Therefore, depressed mothers may interact with their infants in ways that disrupt the child's emotional or cognitive development. This factor may lead infants to feel unprotected and insecure. In this context, maternal depression may predict insecure attachment.

The negative association between maternal depression and infant-mother attachment insecurity has been found in many empirical studies. Most studies report that maternal depression negatively influences the attachment relationship between infants and mothers through maternal insensitivity. Maternal insensitivity and emotional unavailability, one form of maternal insensitivity, have been founded to be among the strongest predictors of an insecure attachment (Atkinson, Paglia, Coolbear, Niccols, Parker, & Guger, 2000; Goldsmoth and Alansky, 1987). Specifically, maternal depression prevents the mother from responding sensitively to her infant and leads to an insecure infant-caregiver attachment relationship (Cummings & Cicchetti, 1990; Radke-Yarrow, 1991).

Some studies also reported the association between maternal depression and infants' insecure attachment is mediated by maternal emotional unavailability. That is, depressed mothers are less active, playful and responsive toward their infants and have less positive and more punitive, negative, critical, angry, intrusive and hostile interactions with their children than non-symptomatic mothers (Field, 1984; Murray & Cooper, 1996). A recent meta-analysis (Atkinson et al., 2000) reported that mothers with chronic and severe depression are more likely to have insecure children who also lack organized attachment strategies. These children have been described as having disorganized or disoriented attachment patterns (Main & Solomon, 1990).

Some researchers have found associations between maternal separation anxiety and other psychological variables. Specifically, Hock and her colleagues (1992) found that maternal separation anxiety is related to emotional health like depressive symptoms. When this association between maternal separation anxiety and depressive symptoms is

applied to Korean culture, where relatively more maternal separation anxiety is anticipated, a high proportion of insecure attachment is likely to be found.

Hypotheses

In this research, the cross-cultural validity of the Strange Situation was addressed in two ways: 1) by examining the distribution of infant attachment patterns and 2) by studying the association between infant and maternal characteristics and infant attachment security. Based on the literature review, the following hypotheses were established.

Cross-Cultural Hypotheses

Hypothesis 1: It is hypothesized that the Korean sample will show a higher proportion of babies classified as resistant and a smaller proportion of babies classified as avoidant, compared with the U.S. sample.

Rationale: Compared with Western culture, Japanese and Indonesian studies reported high percentages of resistant infants and few avoidant infants. Very few studies have been conducted in Eastern cultures (Takahashi, 1986; Zevalkink et al., 1999). To determine whether or not this distribution is due to caregiving characteristics in Eastern culture, the attachment classifications of the Korean sample will be examined.

Hypothesis 2: Compared with infants in the Austin sample, Korean infants will display higher levels of distress during the Strange Situation episodes.

Rationale: Researchers have attributed the high percentage of infants classified as resistant in Japan and Indonesia (vs. western countries) to the greater level of distress infant experience during the Strange Situation. Yet, the degree of distress has not been systematically examined.

Hypothesis 3: Korean infants will show less proximity and contact-maintaining behaviors

and more resistant behaviors during the Strange Situation than will infants in Austin due to the Korean parenting style. Korean mothers rarely separate from their infants. Thus, the babies' heighten distress during the separation episode of the Strange Situation may increase the mothers' distress. It is hypothesized, then, that Korean mothers will initiate contact with their babies more quickly than will mothers in the Austin sample.

Rationale: Most cross-cultural studies about attachment have compared overall attachment patterns across cultures. Studies comparing overall attachment classifications do not provide sufficient information for understanding cultural differences. Thus, the four scales (proximity, contact-maintaining, resistant, and avoidant) that code attachment classifications will be compared between the Korean sample and Austin sample.

Hypotheses for Korean Sample only

Hypothesis 4: Resistant infants will show higher scores on the infant temperament scale of Distress and Latency to Approach Sudden or Novel Stimuli than will secure or avoidant infants.

Rationale: In this study, a high percentage of infants classified as resistant is expected because Korean mothers rarely separate from their babies. Given this caregiving characteristic, Korean infants are expected to experience more distress in the novel environment. Therefore, in the present study, it will be examined whether the proportion of infants classified as resistant is related to Infant attachment.

Hypothesis 5: It is expected that neuroticism will be negatively associated with attachment security and extraversion will be positively associated with attachment security in Korea.

Rationale: In Western culture, associations between maternal personality and attachment security have been studied (Belsky, Crnic, & Woodworth, 1995). No study of maternal personality correlates of infant attachment security has been conducted in Eastern culture.

Hypothesis 6: It is expected that maternal separation anxiety will be related to resistant attachment classification but not to avoidant or secure infant attachment patterns.

Rationale: A mother's tendency to avoid separating from her baby may be related conceptually to her anxiety about such separations. Her anxiety then may influence how she interacts with her baby increasing the likelihood that her baby will form an anxious-resistant attachment with her. Therefore, the association between mothers' separation anxiety and their infant resistant attachment classification will be examined.

Hypothesis 7: It is hypothesized that maternal depression will be associated with insecure infant attachment classifications.

Rationale: Maternal depression has also been shown to contribute to attachment insecurity in many studies in the U.S. (Atkinson et al., 2000; De Wolff and van Ijzendoorn, 1997). Examining maternal depression will be helpful for clarifying maternal characteristics related to infant attachment security in Korea.

Method

Participants

Two samples were included in this study; one from Korea and one in the U.S. Participants in the Korean sample living in Taegu were 87 mothers and their12-18months old infants. To recruit subjects, mothers were given a flyer when they visited their pediatrician at Kyungpook National University Hospital for their babies' routine the one-year immunizations. In addition, mothers whose infants were already immunized when they one year were contacted by telephone. In return for their participation in the study, mothers were offered 10000 Won (about $10 U.S.) as traffic expenses, a towel with the hospital name as a souvenir and a copy of the videotaped strange situation. All of the participants were Korean. The median family income was 2000000 Won (in Korean currency), which is the average income level for families from middle socioeconomic backgrounds. However, 41% of the subjects fell into the upper-middle income level (2500000 – 5000000 Won) with most of the remaining families (45.1%) reporting incomes between 1500000 to 2500000 Won. Subjects ranged in age from 26 and 37 years old (X = 29). The majority reported education beyond the high school level, with 81% earning a Bachelor's or graduate degree. The mean of nonparental caregiving hours was 10.02.

The U.S. sample was part of a longitudinal study investigating the transition to first-time parenthood. A total of 125 couples in their third trimester of a first-time pregnancy were recruited through birthing classes, public service announcements on T.V., and flyers distributed at maternity stores in the Austin and the surrounding rural areas. To insure a

representative sample, families from all income levels with different philosophies about childbirth were recruited. Couples were recruited from birthing classes at hospitals serving indigent populations as well as those serving middle class families. Moreover, about half the sample was recruited from small classes in rural areas. These classes were not associated with a hospital and the instructors ideas about childbirth varied with many advocating less traditional birthing techniques. Finally, 15% of the sample responded to public service announcements advertising that participates would be paid for their participation. In return for their participation in the study, couples were offered $150 in savings bonds for their children, a videotape of parent-child interactions, and bimonthly newsletters containing updates on the research project. The median family income was $30-$45,000. Income level varied widely with 9% reporting family earnings at the poverty level and another 17% had earnings just above poverty. Twenty-three percent, on the other hand, reported earning above $60,000 (the highest income level). Subjects ranged in age from 16 to 41 (X = 26). Sixty percent reported earning a Bachelor's or graduate degree and another 30% reported some college or trade/business school coursework. Ethnic distribution was predominantly Caucasian (85%), but also included 8% Hispanic, 3% African-American, and 4% indicating "Other" and/or bi-racial heritage. There were 113 infants-mothers who participated at the 12 or 15-month visit. Of the 12 families that dropped from the study, eight families moved away, two were too busy to participate, and two could not be located. The 113 participants in this study did not differ from the entire sample on any of the demographic characteristics. The mean of nonparental caregiving hours was 30.49.

Procedure

Mothers and infants in the U.S. and Korea participated in Ainsworth's Strange Situation Procedure, an assessment of the quality of the infant-caregiver attachment relationship. In the U.S. sample, mothers and infants visited a laboratory at the University of Texas at Austin when the infants were either 12 or 16 months old. In Korea, mothers and infants visited a laboratory in Kyungpook National University Hospital when the infants were 12 to 18 months old. Before conducting the Strange Situation in Korea, a videotaped pilot assessment was reviewed by an attachment researcher at the Institute of the Child Development of University of Minnesota. In both the U.S. and Korea, a standardized set of instructions developed by Alan Sroufe was given to mothers prior to the Strange Situation Procedure. In both samples, mothers were reminded of the instructions during the separation episodes. Finally, in both countries the separation episodes (Episode 4, 6, and 7) of the Strange Situation Procedure were curtailed if infants were highly distressed and did not appear to be settling after 30 seconds.

Measures

Infant Attachment Security. When infants were between 12 and 18 months old, they participated with their mothers in the Strange Situation procedure. The Strange Situation Procedure is an observation procedure designed to measure how infants responds to being left alone briefly and how they respond to a stranger. The procedure began with the mothers and infants alone in a room with toys on the floor and a chair and end table in the corner. A person unfamiliar to the infant (e.g., a stranger) entered the room and interacted only with the mother for one minute and then with the infant for two minutes. The mother

then left her infant alone with the stranger for 30 seconds to 3 minutes (depending on the infant's comfort level). The mother then returned. After 3 minutes, the infant was left alone for 30 seconds to 3 minutes. A stranger entered and again, depending on the infant's level of distress, this episode lasted from 30 seconds to 3 minutes. The mother returned and this final episode lasted for 3 minutes. The procedure lasted a total of 16.5 - 21 minutes.

Infant behaviors were coded on four 7-point anchored rating scales for proximity seeking, contact maintaining, avoidance, and resistance. Coders rated infant-mother dyads on these four scales during each of the two reunion episodes. Based on four infant behaviors, three attachment classifications and subclassifications were coded.

To code four attachment classifications, coders also rated the mother-infant dyads on a 9-point disorganized/disoriented scales (Main & Solomon, 1990). This scale was designed to measure signs that the infant is disoriented and disorganized. Specific indices include; 1) Sequential display of contradictory behavior patterns like strong attachment behaviors, avoidant, and resistant behaviors, 2) Simultaneous display of contradictory behavior patterns, 3) Undirected, misdirected, incomplete, and interrupted movements and expressions, 4) Stereotypies, mistimed movements, and anomalous postures, 5) Freezing, stilling, and slowed movements and expressions, 6) Apprehension regarding the parent, 7) Direct indices of disorganization and disorientation. Dyads given a score above 5 were placed into a disorganized group and dyads assigned scores below 5 were not placed in the disorganized group. As specified in the coding manual, the rater decided on an individual basis whether or not to place infants given a rating of 5 into the

disorganized/disoriented group.

To establish the reliability of coding regarding attachment patterns, for the American sample (Austin sample), a trained coder and the first author did 32 cases. For the Korean sample (Taegu sample), the first author coded all of the videotapes and a second trained coder coded 20 videotapes. Agreements between two coders was high (k=.78, p=.01).

Infant Distress. To compare the degree of infants' distress in the two cultures, infants' distress in each separation episode (episode 4, 6, and 7) was assessed. Assessments of infant distress were based on whether or not the infant cried. Specifically, infants who appeared to be comforted and soothed by a stranger were placed in the "non-distressed" group. In episode 7, even if infants had cried when the stranger entered the room, if infants were soothed by a stranger and returned to playing again, they were classified as non-distressed. The agreements between two coders were high (k=.89, p=.000)

Physical Proximity. To compare the extent to which Korean and U.S. mothers stayed physically close to their infants following separations, whether mothers sat in their chairs or not during the whole episode, and whether infants approached their mother or not when they met at the reunion were coded. The first author coded all of the American and Korean videotapes. A second trained American coder rated 25 cases from each sample. Agreements between two coders was high (k=.86, p=.000)

Infant Temperament. The infant Behavior Questionnaire (IBQ; Rothbart, 1981) was designed to assess maternal perceptions of infant temperament. The 96 items are evaluated on a 7-point scale. The response are as follows: 1= never, 2= very rarely, 3= less than half the time, 4= about half the time, 5= more than half the time, 6= almost

always, 7= always, X= does not apply. This measurement is composed of six subscales (Rothbart, 1986). According to Rothbart (1986), Activity level consists of 17 items assessing child's gross motor activity, including movement of arms and legs, squirming and locomotor activity. Smiling and Laughter consists of 15 items measuring expression of joy in any situation. Distress and Latency to Approach Sudden or Novel Stimuli consists of 17 items assessing the child's distress to sudden changes in stimulation and the child's distress and latency of movement toward a novel environment. Distress to Limitations consists of 20 items measuring distress when a goal has been limited or removed. Soothability consists of 11 items assessing child's reduction of fussing, crying, or distress when the caregiver sooth the child. Duration of Orienting consists of 11 items measuring sustained involvement with a single object for extended periods of time when there has been no sudden change in stimuli. In addition, negative reactivity was calculated from an item-weighted sum of dimensions assessing fear and distress to limitations. Positive reactivity was calculated by summing the item-weighted sums of smiling and laughter, and activity level dimensions (Rothbart, 1986). Previous studies reported good test-retest and alpha reliabilities for the dimensions (Rothbart, 1986).

Maternal personality. NEO-PI assesses five major personality dimensions (Costa and McCrae's, 1985). This measurement contains 180 items and has a 5-point continuum ranging from strongly disagree to strongly agree. Costa and McCrae (1985) gave the following names to the five global traits measured by the NEO-PI: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. According to Costa and McCrae's definition, Neuroticism refers to proneness to experience

unpleasant emotions. Extraversion indicates preferences for social interaction and activity. Openness to Experience indicates receptiveness to new ideas, values, and experiences. Agreeableness indicates selfless concern for others and kindness toward others. Conscientiousness refers to individual differences in organization and achievement. The six Neuroticism facets are divided into Anxiety, Hostility, Depression, Self-Consciousness, and Impulsiveness. The six facets of Extraversion are Warmth, Gregariousness, Assertiveness, Activity, Excitement Seeking, and Positive Emotions. The facets of Openness are Openness to Fantasy, Aesthetics, Feeling, Actions, Ideas, and Values.

Maternal separation anxiety. To measure maternal separation anxiety, mothers completed the Maternal Separation Anxiety Scale. The Maternal Separation Anxiety Scale is a 35-item self-report questionnaire (Hock et al., 1983). Twenty-one items measure mothers' anxiety, sadness, and guilt when they were separated from their infants. Each item is scored on a 5-point Likert scale from strongly disagree (1) to strongly agree (5). Examples of items include the following: "Holding or cuddling my child makes me feel so good that I really miss the physical closeness when I am away," "I don't enjoy myself when I am away from my child," "Only a mother just naturally knows how to comfort a distressed child." The internal consistency coefficient (Cronbach's alpha) was .90, and the stability coefficient was .67, based on two administrations conducted one year apart (Hock et al., 1989).

Maternal depression. The CES-D is a self-report questionnaire used to measure depressive symptomatology (Radloff, 1977). This measurement is composed of 20 items

that represent symptoms of depression including depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. Respondents rated the frequency of symptoms from "rarely or none of the time" to "most or all of the time." The total score ranged from 0 to 60. The CES-D has high internal consistency using coefficient alpha and the Spearman-Brown spilt-halves methods. It was about .85 in general population and about .90 in patient populations (Radloff, 1977). However, the CES-D has low test-retest correlations because it is designed to measure current levels of depression. The CES-D has high concurrent validity. This measure discriminates psychiatric inpatient samples from the general population and differentiates among levels of severity within patient groups. In addition, the CES-D scores are significantly correlated with interviewer ratings of depression.

Results

The result section will analyze the distribution of infant attachment classifications and maternal and infant behaviors during the Strange Situation in Korea and the U.S. Next, the relationship of variables related to infant attachment (infant temperament, maternal personality, maternal separation anxiety, and maternal depression) will be analyzed.

Attachment Classifications

Infants were classified into three organized attachment patterns (secure, avoidant and resistant), including the subclassifications for each pattern. In this study, it was hypothesized that the distribution of attachment classification in Korea would show a high proportion of resistant attachment patterns and few avoidant patterns. In order to compare attachment patterns with other samples as well as the Austin sample, the Baltimore sample and the Japanese sample were included in Table 1. As shown in Table 1, the distribution of attachment classifications in Korea was 1.2% avoidant, 77.6% secure, and 21.2% resistant attachment relationships. Compared to infant-caregiver dyads in other cultures, the distribution in Korea and Sapporo were similar except that the percentage of B1 and B2 infants were higher (54.1%) in Korea. The distribution in the Austin sample was 15.3% avoidant, 55.9% secure, and 28.8% resistant. The differences in the distribution of attachment classifications between the Korea and Austin samples were significant in terms of avoidant and secure attachment classifications, χ^2 (2, N = 196) = 15.08, $P < .001$. When the subclassifications were analyzed, a higher proportion of securely attached Korean infants (54%) were classified as secure infants with avoidant tendency (B1 and B2).

When infants who were primarily disorganized were classified as a separate group, the distribution was as follows: 1.2% avoidant, 71.8% secure, 17.6% resistant, and 9.4% disorganized attachment relationships (Korean sample), and 9.9% avoidant, 37.8% secure, 10.8% resistant, and 41.4% disorganized (Austin samples). Differences in the distribution of attachment classifications between the Korean and Austin sample were also significant in terms of avoidant, secure, and disorganized attachment classifications, χ^2 (3, N = 196) = 29.88, P < .001.

The degree of distress in separation episodes

In this study, it was hypothesized that the distributions of attachment classification in Korea would show a high proportion of resistant attachment patterns because it was expected that Korean infants would be highly distressed. In order to systematically analysis the degree of distress between American infants and Korean infants. Table 2 shows the percentage of distressed infants in the secure group in the Austin (N = 62) and Korean (N = 66) samples across three separation episodes. When Korean secure infants were with the stranger during the second separation from the mother, the Korean infants were more distressed than the Austin infants, χ^2 (1, N = 128) = 7.07, P < .01. When the babies were left alone during the first and second separations, there were no difference between babies in Korea and Austin. No differences in the level of distress were found for resistant infants in Austin (N = 32) or Korea (N = 18) during each of the three separation episodes.

Attachment behaviors

The four attachment behavioral scales rated during the Strange Situation-- proximity-seeking, contact-maintaining, avoidant and resistant behaviors--were examined among infants classified as secure or resistant. In this study, it was hypothesized that Korean infants would show more resistant behaviors, as they were predicted to be more distressed during the Strange Situation. Table 3 represents the means and standard deviations in the Korean and American samples among secure infants on the four behavioral scales -- proximity-seeking, contact-maintaining, avoidant and resistant behaviors. An independent sample *t* test was conducted to analyze differences between the two groups. By definition, resistent infants should score higher on the resistent scale and secure babies should score higher on the proximity seeking and contact maintaining scales. Thus, the attachment behavior of babies assigned the same overall classification were compared in Korea and American. Specifically, secure babies in America ($N = 62$) were compared with secure babies in Korea ($N = 66$). Resistant infants in America ($N = 32$) were compared with Korea babies ($N = 18$). Only one baby in Korea was classified as avoidant. Therefore, no analyses were conducted comparing avoidant infants in America and Korea. Moreover, since Ainsworth's behavioral ratings are used only to classify babies into the organized classifications, secure, avoidant and resistent, babies classified as disorganized were not compared on the rating scales. The results differed from the hypothesis. During the two reunion episodes, compared with infants with U.S., secure infants in Korea showed less proximity-seeking, $t(117) = -5.60$, $p < .001$, contact maintaining, $t(79) = -3.74$, $p < .001$, and resistant behaviors, $t(70) = -5.87$, $p < .001$, during the 1st reunion; and less proximity-seeking, $t(126) = -4.41$, $p < .001$, contact

maintaining, $t(126) = -2.03$, $p < .05$, and resistant behaviors, $t(103) = -5.36$, $p < .001$, during the 2nd reunion.

However, resistant infants showed a different pattern. Table 4 represents the means and standard deviations for resistant babies in the Korean and American samples based on the four behavioral scales -- proximity-seeking, contact-maintaining, avoidant and resistant behaviors. During the 1st reunion, Korean babies scored lower on proximity-seeking behavior, $t(48) = -3.23$, $p < .01$, and resistant behavior $t(48) = -2.42$, $p < .05$) than did American infants. However, during the 2nd reunion, there were no differences between the two groups. Interestingly, Korean infants scored higher on resistant behaviors than did American infants but these differences were not statistically significant.

The extent to which Korean and U.S. mothers stayed physically close to their infants following separations.

Next, the extent to which Korean and U.S. mothers stayed physically close to their infants following separations or sat in their chairs during the two reunion episodes was compared. In this study, no hypothesis was predicted because there were not any studies that explore physical proximity within both cultures. As seen in the Table 5, in the secure group, Korean mothers were less likely than American mothers to sit in their chairs during the first, $\chi^2(1, N = 128) = 35.08$, $P < .001$, and second reunions, $\chi^2(1, N = 128) = 66.27$, $P < .001$. Moreover, in both countries, mothers of secure babies more often sat in their chairs during the 1st reunion (American = 98%, Korean = 53%) as compared with the second reunion (American = 95%, Korean = 24%). Similarly, in the resistant group, Korean mothers were less likely than American mothers to sit in their chairs during the

first χ^2 (1, N = 50) = 23.88, P < .001, and second reunion χ^2 (1, N = 50) = 22.22, P < .001.

Infants' behaviors at the two reunions were also compared. As seen in the Table 6, in the secure group, Korean infants were significantly less likely than the American infants to approach their mother following a brief separation. These results were found for both the first reunion, χ^2 (1, N = 128) = 12.49, P < .001, and second reunion, χ^2 (1, N = 128) = 5.71, P < .05. However, Korean infants approached their mothers more during the second reunion as compared with their first reunion. In the resistant group, there were no differences between the two samples

Infant temperament and infant attachment classifiction

Correlations were conducted among subscales to examine the relationship between each subscale of infant temperament. As seen in table 7, the scales of Distress to limitation and the scale of Distress to Sudden approach and stimuli (r =.48, P <.01), the scale of Smiling and the scale of Duration to Orientation (r = .42, P <.01) were moderately correlated.

Next, the association between infant temperament and infant attachment was examined. In this study, it was hypothesized that resistant infants would show high scores on the scale of Distress and Latency to Approach Sudden or Novel Stimuli. Independent *t*-test was used to examine if infant temperament was related to attachment relationship between infant and mother. Any scales of infant temperament were not significantly related to infant attachment (see Table 7). Of particular interest, the scores on the Distress and Latency to Approach Sudden or Novel Stimuli scale, which was predicted to be especially influential in Korea, did not significantly to related to infant attachment

classifications even though the mean was higher for mothers of resistant infants (M = 3.65) as compared with mothers of secure infants (M = 3.44).

Next, a goodness of fit between infant temperament and maternal personality was examined. First, correlations between infant temperament and maternal personality were conducted to examine the relationship between infant temperament and maternal personality. As seen in Table 9, the correlations between infant temperament and maternal personality were low. In order to examine the goodness of fit, Rothbart's positive and negative reactivity scales for infant temperament were used. To create the positive reactivity scale, Activity, Smiling and Laughter were added together. To create the negative affectivity scale, Distress and Latency to Approach Sudden or novel Stimuli and Distress to Limitation were added together. As a maternal personality variable, Openness was selected because a study about the goodness of fit examined the "Constraint" variable, defined as rigidity or traditionalism. Openness and Constraint may be conceptually related in that Openness can be thought as the opposite of being traditional or constrained. To examine the goodness of fit, a logistic regression was used. The outcome variable was attachment security. The predictor variables were infant temperament (the negative or positive reactivity), maternal personality(Openness), and the interaction between these two predictor variables. The result was not significant (Odds ratio = 1.72, p>.05, Odds ratio = .79, p>.05).

Maternal personality and infant attachment

Correlations among maternal personality, maternal separation anxiety and maternal depression were conducted to examine the relationships among maternal characteristic

variables (See Table 10). Among the correlates, maternal depression and maternal neuroticism (r = .47, P <.01) and Openness and Extraversion (r = .51, P <.01) showed strong associations.

In this study, it was predicted that neuroticism would be negatively associated with attachment security and that extraversion would be positively associated with attachment security. In order to explore other subscales, Openness, Agreeableness, and Conscientiousness were analyzed. Independent *t*-test was used to examine if maternal personality was related to attachment relationship between infant and mother. The results differed from the hypothesis. Extraversion-Warmth (df = 78, t = 2.03) and Openness-Feeling (df = 78, t = 2.24) were significantly related to attachment relationship between infants and mothers (see table 11). Specifically, mothers of secure infants (M = 3.66) scored higher on warmth than did mothers of resistant infants (M = 3.45). Mothers of secure infants (M = 3.42) scored higher on openness of feeling than did mothers of resistant infants (M = 3.20).

Maternal personality and attachment behaviors.

As the results of analyses, only some subscales of maternal personality were related to attachment classification. To obtain further information regarding these relationships, Pearson Correlations were conducted to determine if maternal personality to attachment behaviors during reunion episodes was related. As seen the Table 12, extraversion-warmth was significantly correlated with contact maintaining behavior (r = .27, P = .01) and resistant behavior (r = -.27, P = .02) in the second reunion episode. Openness to feelings was significantly negatively correlated with resistant behavior (r = -. 26, P = .02)

in the second reunion episode.

Maternal separation anxiety and infant attachment

In this study, it was predicted that mothers of resistant infants would report high scores of maternal separation anxiety. Few separation experiences might cause Korean infants to be more distressed during the Strange Situation. In turn, the likelihood of being classified as resistant would be high. Moreover, mothers of resistant infants may feel high separation anxiety because of the high distress of their infants. Independent *t*-test was used to examine if maternal separation anxiety was related to attachment relationship between infant and mother. Even though maternal separation anxiety was expected to be related to resistant infant attachment relationship in Korea, maternal separation anxiety did not significantly differ on any of the scales (See table 13).

Maternal depression and infant attachment

In this study, maternal depression was expected to be associated with attachment insecurity. Independent *t*-test was used to examine if maternal depression was related to attachment relationship between infant and mother. Maternal depression did not show significant differences between mothers of secure infants and mothers of resistant infants (see Table 14).

Discussion

The present study compared the distribution of infant attachment classifications and maternal and infant behaviors during the Strange Situation in Korea and the U.S. and examined variables related to infant attachment. First, maternal and infant behaviors among secure infants and resistant infants during the Strange Situation in Korea and Austin will be compared. Second, the distribution of attachment security (vs. insecurity) in Korea and other cultures will be discussed in terms of the behaviors of infants and mothers and parenting style in Korea and the U.S. Finally, variables related to infant attachment relationship (infant temperament, maternal personality, maternal separation anxiety, and maternal depression) will be discussed.

First, the behaviors of the Korean mothers and infants during the Strange Situation were very interesting. In this study, a comparison of maternal and infant behaviors during the Strange Situation in Korea and the U.S. was undertaken to further understand the differences and similarities between the attachment classifications in Korea and the U.S. Specifically, Korean infants showed fewer proximity and contact-maintaining behaviors with their mothers following a brief separation than did American infants. As a result, compared with the Austin sample, a larger percentage of secure infants in Korea were classified as B1 and B2 – secure with less proximity and contact.

The higher incidence of B1 and B2 babies in Korea is likely related to the fact that Korean mothers were significantly more likely than the Austin mothers to approach and pick up their infants when they returned from the brief separation. They did not wait for their infants to approach them, even though they were instructed to do so. On the other

hand, American mothers, given the same instructions, did wait for about 15 seconds. It is not surprising then that the Korean infants classified as secure were less likely than the Austin infants to stand up and were less likely to approach their mother upon reunion.

These behaviors may also be explained by the Korean parenting style that puts less emphasis on independence in early childhood. In Korean culture, Korean mothers take the initiative during the interactions between them and their infants. Another possible explanation is that due to fewer separation experiences in Korean caregiving, the babies' distress might cause the mothers to be more concerned, and in turn, initiate contact quickly. With respect to infant behaviors, Korean infants might trust that their mothers would initiate the reunion, based on their everyday experiences.

It is fascinating that Korean infants were given significantly lower scores on the resistant scale than Austin infants. The reason that Korean infants (vs. Austin infants) had lower resistant scores may be explained by the Korean mothers' behavior. Korean mothers did not put down their infants until their infants stopped crying. This maternal behavior might have reduced the degree of distress.

These different behaviors of the Korean mothers and infants during the Strange Situation can help explain the different distribution of attachment patterns. Contrary to predictions, the Korean sample showed the result that are contrary to those previously reported in Eastern cultures, in terms of the distribution of infants classified as resistant. The Japanese and Indonesian samples showed relative high percentages of resistant infants, but the percentages of Korean infants classified as resistant were analogous to the global distribution, which has a range of 1.5% to 33.3% (X=14%). The Korean mothers'

continuing effort to sooth by holding their infants until their infants completely stopped crying may make their infants more soothable. In turn, the Korean sample may be similar to the global distribution, unlike the previous studies in other Eastern cultures. Other explanations that account for discrepancies between the distributions found in this study and the Indonesian and Sapporo studies are possible. Mothers recruited for the Indonesia sample came from a lower socioeconomic status—a factor that has been linked to a higher percentage of infants classified as anxious-resistant in the U.S. (Zevalkink et al., 1999). An explanation for the discrepancies between the two samples in the Sapporo study is not certain. Nevertheless, it has been hypothesized by some researchers (Sagi & Lewkowicz, 1987; Van Ijzendoorn & Kroonenberg, 1988) that the length of the separation period in Takahashi's (1986) study was too long and caused the infants to become more distress and take longer to settle down when their mothers returned. This possibility may have been accounted for in the subsequent sample in Sapporo, Japan.

However, the Korean sample showed a similar distribution to the previous studies in other Eastern cultures in terms of the avoidant classification. The Korean sample had very few infants classified as avoidant. Specifically, as compared to the percentage of infants classified as avoidant in the U.S. sample (5-36%) and in the Austin sample (15%), only one Korean infant (1.2%) was classified as avoidant. Given that the vast majority of Korean mothers stayed home and kept their infants in close proximity, either on their backs, in their arms, or playing right next to them, it is unlikely that their babies' crying would be completely ignored. Such findings are consistent with the well-known American anthropologist, Osgood's (1951) observations of Korean culture. He noted that

the infants are indulged, not allowed to cry for any length of time and breast fed on demand for as long as two years. These behaviors of the Korean mothers are consistent with their behaviors during the Strange Situation, in that they keep their infants in close proximity to sooth their infants.

These variations can be also attributed to differences in the Korean and American caregiving styles. Korean mothers tend to avoid any separation from their children when they are young. In this study, for example, more Korean mothers than Austin mothers were likely to stay home with their children instead of using daycare. Moreover, the infants in the Austin sample were exposed to significantly more hours of caregiving with nonparents than the Korean infants.

Next, in terms of infants classified as secure, the percentage of Korean infants classified as secure vs. insecure (78%) was similar to that of US babies, which has ranged from 46% to 94% (Van Ijzendoorn & Kroonenberg, 1988). However, in comparison to the Austin sample specifically, the percentage for Korean infants was significantly higher (56%). One possible explanation is that the Korean mothers were from higher socioeconomic statuses (in terms of level of education and family income) than were the Austin mothers. In a study of meta-analysis about attachment (Van Ijzendoorn & Kroonenberg, 1988), low SES samples had more insecure infants than higher SES samples. In this study, only 60% of the Austin mothers had at least a bachelor's degree, while the percentage for the Korean mothers was 81%. Furthermore, even though the average income level was middle SES, the percentage of Korean mothers who reported incomes of the middle-upper SES level was 41.3%, and the percentage that reported

incomes just below the middle SES level was only 13.8%.

According to U.S. census data from 1993, the year that the mothers were recruited, the Austin sample reported a level of education within the average range. However, for the Austin sample, a large variation occurred in terms of income levels. Twenty-three percent of the mothers reported earnings in the middle-upper SES range, while 26% reported earnings either below the poverty level or just above poverty.

Another possible explanation for the relative high percentage of secure infants is due to the Korean mothers' behaviors during the Strange Situation. That is, recognizing the tendency for Korean mothers to keep their infants in close proximity (on their backs, in their arms, or next to them while playing), it is rare that their babies' crying would be ignored, in turn, more infants may be classified as secure.

On a final note, the percentage of infants classified as disorganized was lower in Korea than the global distribution and specifically, the Austin sample. One plausible explanation is that Korean mothers may be less inclined to act in any way that may frighten their infants—a characteristic that has been linked to attachment disorganization in previous studies (Lyons-Ruth & Jacobvitz, 1999; Schuengel, van Ijzendoorn, Bakermans-Kranenberg, & Blom, 1998). Apart from the Indonesian study, this study is the only other study that has focused on attachment disorganization in an Eastern culture. However, comparing the data from this study and the Indonesian study is challenging because of the differences in the composition of the subjects. In Korea, the infants were between 12 to 18 months old when the Strange Situation occurred, whereas in Indonesia, the infants were 12 to 30 months old. In fact, 21 of the 46 Strange Situations conducted in

Indonesia occurred when the infants were 24 to 30 months old, and the researchers did not indicate the number of infants classified as disorganized per age group.

Next, in the following sections, variables related to infant attachment will be discussed in order to gain a deeper understanding of infant attachment relationships in Korea. The association between infant temperament and infant attachment relationship security was examined because this infant variable has been related to infant attachment security in the U.S. (Connell & Thompson, 1986; Thompson & Lamb, 1984). The Strange Situation assesses the strategies infants use to regulate their distress after experiencing separations in unfamiliar environments. It is possible that infants who are high on negative emotionality or have a difficult temperament may be highly distressed. In this case, they would have more difficulty being soothed when distressed, display resistant behavior and be classified as resistant. Of particular interest in this study, an association between the temperament variable, distress and latency to approach sudden or novel stimuli, and infant resistant attachment classification was expected. Korean children experienced few separations from their mother at an early age. In turn, more Korean infants were expected to be classified as resistant. However, the association was not supported in this study. Although mothers of resistant infants reported higher scores than mothers of secure infants on distress and latency to approach sudden or novel stimuli, the difference was not significant. Therefore, the variable was not associated with infant attachment security. Actually, most infants were distressed during the strange situation. Specifically, 85 % of secure infants were distressed in the second separation when they were left alone, and 61 % of them were distressed in the second separation episode when

they were with a stranger. However, 78 % of them were classified as secure because they were soothed by their mothers. Therefore, the difference between secure infants and resistant infants was attributed to soothability rather than distress.

Other subscales were not associated with infant attachment security. Other studies that reported the association between infant temperament and infant attachment relationship used other measurements; Neonatal Behavioral Assessment Scales in Crockenberg's study (1981), and Louisville Emotional Temperament measure in Mangelsdorf et al.' study (1990).

In addition to characteristics of the baby that could influence infant attachment, the present study examined whether characteristics of the mother contributed to infant attachment. Since maternal personality may influence maternal parenting, the association between maternal personality and infant attachment classification was expected. Specifically, it was expected that Neuroticism would be negatively related to infant attachment security, whereas Extraversion would be positively related to infant attachment security. This is because mothers who have high neuroticism may be less affectively positive, while mothers who have high extraversion may be more affectively positive. Other scales were not hypothesized. In this study, none of the scales among the big five traits were significant. However, Warmth, a subscale of Extraversion, was related to infant attachment security, and openness to feeling, a subscale of openness to experiences, was also related to infant attachment security. These results were consistent with other studies that reported the associations between warmth and infant attachment security. Interestingly, Extraversion and Openness were significantly correlated. One

possible explanation is that people who prefer social interaction and activity may be more exposed and receptive to new ideas, values, and experiences.

Moreover, the maternal warmth in this study was positively correlated with contact maintaining behavior and negatively correlated with resistant behavior. This finding implies that warmer mothers may hold their babies more. In turn, their infants may be soothed more easily and show less resistant behavior. Of particular interest, in this study, openness to feeling was related to infant secure attachment. Mothers with high scores on openness to feeling may be likely to have more flexible interaction with other people. Therefore, they may be more flexible regarding the needs of their infants. It may be contributed to secure attachment. Moreover, openness to feeling was negatively correlated with resistant behaviors.

Next, the association between maternal separation anxiety, another maternal variable, and infant attachment relationship security was examined in this study. It was expected that maternal separation anxiety would be related to resistant more than avoidant infant attachment patterns because of the Korean caregiving style. Specifically, Korean mothers were expected to experience higher levels of maternal separation anxiety because Korean infants are rarely separated from them. In turn, Korean infants were expected to be classified as resistant more often. However, the association between maternal separation anxiety and infant-mother attachment relationship was not supported. This finding implies that the influence of Korean mothers' maternal separation anxiety is negligible to infant attachment classifications because they avoid separation from their babies.

Finally, maternal depression was the third maternal variable related to infant

attachment security in this study. Mothers who had depression symptoms, for example sadness and helpless, may be less responsive to infants' needs. Therefore, it was hypothesized that maternal depression would be associated with infant insecurity attachment. However, the hypothesis was not supported. According to the literature review, most studies that reported the association between maternal depression and infant-mother attachment relationship were mediated by maternal sensitivity. That is, maternal depression influenced maternal insensitivity, and in turn, maternal insensitivity influenced attachment relationship between infants and mothers. Since maternal sensitivity was not measured in this study, the pathway is not clear in this study.

Moreover, studies that reported the direct effect of maternal depression on infant-mother relationship were conducted for mothers with chronic and severe depression (Atkinson et al., 2000). However, maternal depression in this sample may not severe or chronic enough to significantly influence the infant-mother attachment relationship. Therefore, in this study, maternal depression might not be associated with infant insecurity attachment.

Conclusion

In spite of fewer babies classified as avoidant, the strange situation procedure seems to be applicable to Korean culture, in that the proportion of babies considered secure vs. insecure is roughly similar across nations. Moreover, secure (vs. insecure) infants showed clearly different behavioral characteristics in the procedure. Specifically, resistant infants were more distressed during separation episodes and less soothed by their mothers when reunited. Nevertheless, it is not clear whether being securely attached has the same

meaning for infants in Korea versus other countries. Future studies are needed in which home observations are gathered over the first year of life and the babies are followed over time. Studies with Korean families from other socioeconomic backgrounds and from other regions of Korea also will provide evidence pertaining to the generalizability of the results obtained in this study with middle-upper class Koreans residing in the large city of Tague, Korea. Similar to findings obtained in the U.S., it is possible that there would be a higher incidence of insecurity, including babies classified as avoidant and disorganized in samples from lower socioeconomic backgrounds.

Tables

Table 1. Distributions of infant-mother attachment classification in diverse cultures.

	Avoidant		Secure				Resistant	
	A1	A2	B1	B2	B3	B4	C1	C2
Japan Sapporo Cohort 1&2	0 (0%)	0 (0%)	0 (0%)	9 (15%)	30 (50%)	2 (3%)	19 (32%)	0 (0%)
Japan Tokyo	4 (11%)	1 (3%)	1 (3%)	4 (11%)	8 (22%)	11 (31%)	4 (11%)	3 (8%)
USA Baltimore	12 (11%)	10 (9%)	10 (9%)	11 (10%)	45 (42%)	4 (4%)	6 (6%)	7 (7%)
USA Austin	7 (6%)	10 (9%)	14 (13%)	19 (17%)	14 (13%)	15 (14%)	19 (17%)	13 (12%)
Korea Daegu	1 (1%)	0 (0%)	22 (26)	24 (28%)	8 (9%)	12 (14%)	16 (19%)	2 (2%)

Table 2. Percentage of Secure and Resistent babies who cried when they were separated from their mothers and either left alone or with a stranger during the Strange Situation

Secure Infants									
	1st Separation (with stranger))			2nd Separation (left alone)			2nd Separation (with stranger)		
	American (n = 62)	Korean (n = 66)	χ^2	American (n = 62)	Korean (n = 66)	χ^2	American (n = 62)	Korean (n = 66)	χ^2
Cry	14 (23%)	7 (11%)	3.34	46 (74%)	56 (85%)	2.24	23 (37%)	40 (61%)	7.07**
Not Cry	48 (77%)	59 (89%)		16 (26%)	10 (15%)		39 (63%)	26 (39%)	

Resistent Infants									
	1st Separation (with srtanger)			2nd Separation (left alone)			2nd Separation (with stranger)		
	American (n = 32)	Korean (n = 18)	χ^2	American (n = 32)	Korean (n = 18)	χ^2	American (n = 32)	Korean (n = 18)	χ^2
Cry	13 (41%)	10 (56%)	1.03	31 (97%)	18 (100%)	.57	21 (66%)	14 (78%)	.99
Not Cry	19 (59%)	8 (44%)		1 (3%)	0 (0%)		13 (34%)	4 (22%)	

*p <.05, ** p <.01

Table 3. Attachment behaviors displayed by secure infants

	1st Reunion					2nd Reunion				
	American (n = 62)		Korean (n = 66)			American (n = 62)		Korean (n = 66)		
	M	*SD*	*M*	*SD*	*t*	*M*	*SD*	*M*	*SD*	*t*
Proximity	3.89	1.91	2.17	1.53	-5.60***	4.79	1.64	3.48	1.70	-4.41***
Contact-Maintaining	2.38	1.72	1.48	.73	-3.74***	3.43	1.72	2.83	1.59	-2.03*
Avoidance	2.93	3.06	2.42	1.01	-1.23	1.73	1.11	1.71	.97	-.12
Resistance	1.81	.99	1.05	.27	-5.87***	2.35	1.23	1.36	.79	-5.36***

* $p < .05$, ** $p < .01$, *** $p < .001$

Table 4. Attachment behaviors displayed by resistant infants

	1st Reunion					2nd Reunion				
	American (n = 32)		Korean (n = 18)			American (n = 32)		Korean (n = 18)		
	M	*SD*	*M*	*SD*	*t*	*M*	*SD*	*M*	*SD*	*t*
Proximity	5.14	1.51	3.56	1.91	-3.23**	5.28	1.33	5.17	1.38	-.29
Contact-Maintaining	4.05	1.93	3.06	2.12	-1.68	5.19	1.75	5.72	1.13	1.16
Avoidance	1.97	1.48	1.92	.98	-.15	1.55	1.16	1.36	.64	-.63
Resistance	3.50	1.45	2.33	1.94	-2.42*	4.77	1.01	5.33	.84	2.01

p <.05, ** p <.01, *** p < .001

Table 5. Mother's behavior of secure and resistent babies during the reunions following a brief separation

Maternal behavior of secure babies during reunions						
	1st Reunion			2nd Reunion		
	American (n = 62)	Korean (n = 66)	χ^2	American (n = 62)	Korean (n = 66)	χ^2
Sit in chair	61 (98%)	35 (53%)	35.08***	59 (95%)	16 (24%)	66.27***
Not sit	1 (2%)	31 (47%)		3 (5%)	50 (76%)	

Maternal behavior of resistent babies during reunions						
	1st Reunion			2nd Reunion		
	American (n = 32)	Korean (n = 18)	χ^2	American (n = 32)	Korean (n = 18)	χ^2
Sit in chair	30 (94%)	5 (28%)	23.88***	24 (75%)	1 (6%)	22.22***
Not sit	2 (6%)	13 (72%)		8 (25%)	17 (94%)	

*** p <.001

Table 6. Behavior of secure and resistant babies during the reunions following a brief separation

	Secure babies' behavior at the reunions					
	1st Reunion			2nd Reunion		
	American (n = 62)	Korean (n = 66)	χ^2	American (n = 62)	Korean (n = 66)	χ^2
Not approach	27 (44%)	49 (74%)	12.49***	14 (23%)	28 (42%)	5.71*
Approach	35 (56%)	17 (26%)		48 (77%)	38 (58%)	

	Resistant babies' behavior at the reunions					
	1st Reunion			2nd Reunion		
	American (n = 32)	Korean (n = 18)	χ^2	American (n = 32)	Korean (n = 18)	χ^2
Not approach	8 (25%)	6 (33%)	.40	4 (13%)	1 (6%)	.62
Approach	24 (75%)	12 (67%)		28 (87%)	17 (94%)	

* p <.05, ** p <.01, *** p <.001

Table7. Intercorrelation among Infant temperament

	1	2	3	4	5	6
1.Activity		.34**	.16	.18	.05	.09
2.Distress to Limitation			.48**	.05	.03	.11
3.Distress to sudden Approach and stimuli				-.15	-.24*	.11
4. Smiling					.22*	.42**
5. Soothability						.17
6. Duration to Orientation						

P < .05 ** P < .01

Table 8. Infant temperament of secure and resistant babies.

	Secure (n=62)		Resistant (n=18)		
	M	*SD*	*M*	*SD*	*t*
Activity	3.93	.74	4.17	.67	-1.23
Smiling and Laughter	5.10	.64	5.01	.73	.51
Distress and Latency to Approach Sudden or Novel Stimuli	3.44	.70	3.65	.84	-1.03
Distress to Limitations	3.79	.62	4.04	.76	-1.47
Soothability	5.25	1.07	5.23	.95	.09
Duration of Orienting	3.45	.79	3.49	.99	-.18

Table 9. Correlations between infant temperament and maternal personality

Variables	Infant temperament						Maternal personality				
	1	2	3	4	5	6	7	8	9	10	11
Temperament											
1.Activity		.34**	.16	.18	.05	.09	.13	.02	.02	-.13	-.20
2.Distress to Limitation			.48**	.05	.03	.11	.25*	-.07	-.07	-.17	-.11
3.Distress to sudden Approach and stimuli				-.15	-.24*	.11	.13	-.22*	-.13	-.10	.01
4. Smiling					.22*	.42**	.07	.21	.21	.16	.21
5. Soothability						.17	.06	.08	.16	.22*	-.02
6. Duration to Orientation							.03	.01	.10	-.04	.01
Personality											
7.Neuroticism								.07	-.11	-.22*	-.14
8.Extraversion									.51**	.09	.16
9.Openness										.28*	.23*
10.Agreeableness											.29**
11.Conscientiousness											

* P < .05 ** P < .01

Table 10. Correlations among maternal variables

Variables	Separation anxiety			CESD	Personality				
	1	2	3	4	5	6	7	8	9
Separation anxiety									
1.Maternal separation anxiety		.19	.35**	.13	.11	.17	.01	.25*	.28*
2. Perception of separation effects			.25*	-.03	-.08	.00	.06	-.06	.03
3.Employment-related separation concern				-.03	-.07	.02	.01	.19	.03
Depression									
4. CESD					.47**	-.28*	-.28*	-.11	-.18
Personality									
5.Neuroticism						.07	-.11	-.22*	-.14
6.Extraversion							.51**	.09	.16
7.Openness								.28*	.23*
8.Agreeableness									.29**
9.Conscientiousness									

* P < .05 ** P < .01

Table 11. Maternal personality of secure and resistant babies.

	Secure (*n*=62)		Resistant (*n*=18)		
	M	*SD*	*M*	*SD*	*t*
Neuroticism	2.98	.35	2.99	.36	-.10
Anxiety	3.12	.61	3.05	.57	.43
Hostility	2.72	.46	2.87	.47	-1.21
Depression	2.85	.54	2.88	.54	-.14
Self-Consciousness	3.09	.37	3.06	.44	.22
Impulsiveness	3.07	.49	3.01	.52	.43
Vulnerability	3.02	.42	3.06	.39	-.34
Extraversion	3.28	.27	3.15	.26	1.73
Warmth	3.66	.41	3.45	.30	2.03*
Gregariousness	3.28	.47	3.15	.44	1.07
Assertiveness	3.01	.46	2.94	.41	.51
Activity	3.09	.38	2.99	.41	1.01
Excitement Seeking	3.11	.44	3.02	.52	.70
Positive Emotions	3.50	.53	3.35	.46	1.12
Openness to Experience	3.20	.25	3.13	.23	.10
Fantasy	2.82	.38	2.74	.43	.81
Aesthetics	3.29	.57	3.30	.40	-.07
Feeling	3.42	.38	3.20	.33	2.24*
Actions	3.08	.37	3.11	.24	-.48
Ideas	3.11	.48	3.10	.58	.12
Values	3.47	.34	3.35	.29	1.38
Agreeableness	3.45	.24	3.38	.29	1.07
Conscientiousness	3.40	.41	3.41	.40	-.12

*p <.05

Table 12. Maternal personality and attachment behaviors.

	Proximity (Epi 5)	Contact (Epi 5)	Resistant (Epi 5)	Avoidant (Epi 5)	Proximity (Epi 8)	Contact (Epi 8)	Resistant (Epi 8)	Avoidant (Epi 8)
Extraversion -Warmth	.13	.13	-.07	-.08	.17	-.27*	-.27*	-.10
Openness -Feeling	.15	.01	-.10	-.08	.06	.09	-.26*	-.04

*p <.05

Table 13. Maternal separation anxiety of secure and resistant babies

	Secure (*n*=62)		Resistant (*n*=18)		
	M	*SD*	*M*	*SD*	*t*
Maternal separation anxiety	24.53	4.15	24.26	3.60	.25
Perception of separation effects on the child	16.11	3.55	15.33	3.45	.83
Employment-related separation concerns	22.37	3.39	22.83	4.45	-.47

Table 14. Maternal depression of secure and resistant babies

	Secure (*n*=62)		Resistant (*n*=18)		
	M	*SD*	*M*	*SD*	*t*
Maternal depression	12.16	7.27	11.61	7.59	.28

Appendix A

CONSENT FORM

A Cross-Cultural Study of Infants' Attachment in Parents in Korea and US

You and your infant are invited to participate in a study comparing patterns of infant attachment in Korea and the United States. My name is Mi Kyoung Jin and I am a student at The University of Texas at Austin, Human Development and Family Sciences in the Department of Human Ecology. This study is my doctoral dissertation. I am asking for permission to include you and your infant because you are at Kyungpook National University Hospital. I expect to have about 60 participants in the study.

If you allow your child to participate, Mi Kyoung Jin will meet with you twice at the Kyungpook National University Hospital. The first visit will take about one hour and the second visit will take about 1½ hours. During both visits we ask you to answer questions about how you think about yourself and your infant through three questionnaires (The Center for Epidemiological Studies of Depression (CES-D), the Infant Behavior Questionaire (IBQ), and the Separation Anxiety Test, NEO-PI (a personality measure) and the Parental Stress Index). In addition, during the first visit, we would like to use an observation procedure designed to measure how your child responds to being left alone briefly and how s/he responds to a stranger. You and your child will sit in a room with several toys. At one point, you will be asked to leave the room, and a stranger will enter; then, you will return. Observers will look at the child's reaction to separation, to the stranger, and to your return. The procedure takes a total of about 20-25 minutes. For confidentiality, all data records will be coded with a randomly assigned number rather than the children's names.

At the second visit you will be asked some questions about you and your family. Some of the questions are personal such as those that ask you to describe your family relationships. You may be discomfort at interviews where sensitive personal and family issues may be discussed. However, you can choose not to answer these questions. Your audio taped interview will be erased after the data are coded.

Any information that is obtained in connection with this study and that can be identified with your child will remain confidential and will be disclosed only with your permission. His or her responses will not be linked to his or her name or your name in any written or verbal report of this research project.

Your decision to allow your child to participate will not affect your or his or her present or future relationship with The University of Texas at Austin or Kyungpook National University Hospital. If you have any questions about the study, please ask me. If you have any questions later, call me at 471-0664. If you have any questions or concerns about your child's participation in this study, call Professor Clarke Burnham, Chair of the

University of Texas at Austin Institutional Review Board for the Protection of Human Research Participants at 232-4383.

You may keep the copy of this consent form.

You are making a decision about allowing your child to participate in this study. Your signature below indicates that you have read the information provided above and have decided to allow him or her to participate in the study. Interactions between you and your child will be video taped. If you later decide that you wish to withdraw your permission for your child to participate in the study, simply tell me. You may discontinue his or her participation at any time.

_____
Printed Name of Child

_____ _____
Signature of Parent(s) or Legal Guardian Date

_____ _____
Signature of Investigator

In addition, you are also making a decision about allowing your interview to be audio taped. Your signature below indicates that you have decided to allow your interview to be audio taped in the study. Interactions between you and your child will be video taped. If you later decide that you wish to withdraw your permission about audio taping in the study, simply tell me. You may discontinue your participation at any time.

_____
Printed Name of Child

_____ _____
Signature of Parent(s) or Legal Guardian Date

_____ _____
Signature of Investigator

Appendix B

Infant Behavior Questionnaire
1978 Version

Subject No. _____ Date of Baby's Birth ____ ____ ____
mon. day year

Today's Date _____ Age of Child _____ _____
mons. weeks

Sex of Child _____

INSTRUCTIONS: Please read carefully before starting:
As you read each description of the baby's behavior below, please indicate how often the baby did this during the LAST WEEK (the past seven days) by circling one of the numbers in the left column. These numbers indicate how often you observed the behavior described during the last week.

(1) Never	(2) Very Rarely	(3) Less Than Half the Time	(4) About Half the Time	(5) More Than Half the Time	(6) Almost Always	(7) Always	(X) Does Not Apply

The "Does Not Apply" (X) column is used when you did not see the baby in the situation described during the last week. For example, if the situation mentions the baby having to wait for food or liquids and there was no time during the last week when the baby had to wait, circle the (X) column. "Does Not Apply" is different from "Never" (1). "Never" is used when you saw the baby in the situation, but the baby never engaged in the behavior listed during the last week. For example, if the baby did have to wait for food or liquids at least once but never cried loudly while waiting, circle the (1) column.

Please be sure to circle a number for every item.

Feeding

When having to wait for food or liquids during the last week, how often did the baby:
1 2 3 4 5 6 7 X . . . . . (1) seem not bothered?
1 2 3 4 5 6 7 X . . . . . (2) show mild fussing?
1 2 3 4 5 6 7 X . . . . . (3) cry loudly?

During feeding, how often did the baby:
1 2 3 4 5 6 7 X . . . . . (4) lie or sit quietly?
1 2 3 4 5 6 7 X . . . . . (5) squirm or kick?
During feeding, how often did the baby:
1 2 3 4 5 6 7 X . . . . . (6) wave arms?
1 2 3 4 5 6 7 X . . . . . (7) fuss or cry when s/he had enough to eat?
1 2 3 4 5 6 7 X . . . . . (8) fuss or cry when given a disliked food?

When given a new food or liquid, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (9) accept it immediately?
1 2 3 4 5 6 7 X . . . . . (10) reject it by spitting out, closing mouth, etc.?
1 2 3 4 5 6 7 X . . . . . (11) not accept it no matter how many times offered?

Sleeping

Before falling asleep at night during the last week, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (12) show no fussing or crying?

During sleep, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (13) toss about in the crib?
1 2 3 4 5 6 7 X . . . . . (14) move from the middle to the end of the crib?
1 2 3 4 5 6 7 X . . . . . (15) sleep in one position only?

After sleeping, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (16) fuss or cry immediately?
1 2 3 4 5 6 7 X . . . . . (17) play quietly in the crib?
1 2 3 4 5 6 7 X . . . . . (18) coo and vocalize for periods of 5 minutes or longer?
1 2 3 4 5 6 7 X . . . . . (19) cry if someone doesn't come within a few minutes?

How often did the baby:

1 2 3 4 5 6 7 X . . . . . (20) seem angry (crying and fussing) when you left her/him in the crib?
1 2 3 4 5 6 7 X . . . . . (21) seem contented when left in the crib?
1 2 3 4 5 6 7 X . . . . . (22) cry or fuss before going to sleep for naps?

Bathing and Dressing

When being dressed or undressed during the last week, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (23) wave her/his arms and kick?
1 2 3 4 5 6 7 X . . . . . (24) squirm and/or try to roll away?
1 2 3 4 5 6 7 X . . . . . (25) smile or laugh?

When put into the bath water, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (26) startle (gasps, throws out arms; stiffens body, etc.)?
1 2 3 4 5 6 7 X . . . . . (27) smile?
1 2 3 4 5 6 7 X . . . . . (28) laugh?
1 2 3 4 5 6 7 X . . . . . (29) have a surprised expression?
1 2 3 4 5 6 7 X . . . . . (30) splash or kick?
1 2 3 4 5 6 7 X . . . . . (31) turn body and/or squirm?

When face was washed, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (32) smile or laugh?
1 2 3 4 5 6 7 X . . . . . (33) fuss or cry?

When hair was washed, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (34) smile or laugh?
1 2 3 4 5 6 7 X . . . . . (35) fuss or cry?

Play

How often during the last week did the baby:

1 2 3 4 5 6 7 X . . . . . (36) look at pictures in books and/or magazines for 2-5 minutes at a time?
1 2 3 4 5 6 7 X . . . . . (37) look at pictures in books and/or magazines for 5 minutes or longer at a time?
1 2 3 4 5 6 7 X . . . . . (38) stare at a mobile, crib bumper or picture for 5 minutes or longer?
1 2 3 4 5 6 7 X . . . . . (39) play with one toy or object for 5-10 minutes?
1 2 3 4 5 6 7 X . . . . . (40) play with one toy or object for 10 minutes or longer?
1 2 3 4 5 6 7 X . . . . . (41) spend time just looking at playthings?
1 2 3 4 5 6 7 X . . . . . (42) repeat the same sounds over and over again?
1 2 3 4 5 6 7 X . . . . . (43) laugh aloud in play?
1 2 3 4 5 6 7 X . . . . . (44) smile or laugh when tickled?
1 2 3 4 5 6 7 X . . . . . (45) cry or show distress when tickled?
1 2 3 4 5 6 7 X . . . . . (46) repeat the same movement with an object for 2 minutes or longer (e.g., putting a block in a cup, kicking or hitting a mobile)?

When something the baby was playing with had to be removed, how often did s/he:

1 2 3 4 5 6 7 X . . . . . (47) cry or show distress for a time?
1 2 3 4 5 6 7 X . . . . . (48) cry or show distress for several minutes for longer?
1 2 3 4 5 6 7 X . . . . . (49) seem not bothered?

When tossed around playfully, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (50) smile?
1 2 3 4 5 6 7 X . . . . . (51) laugh?

During a peekaboo game, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (52) smile?
1 2 3 4 5 6 7 X . . . . . (53) laugh?

Daily Activities

How often during the last week did the baby:

1 2 3 4 5 6 7 X . . . . . (54) cry or show distress at a loud sound (blender, vacuum cleaner, etc.)?
1 2 3 4 5 6 7 X . . . . . (55) cry or show distress at a change in parents' appearance (glasses off, shower cap on, etc.)?
1 2 3 4 5 6 7 X . . . . . (56) when in a position to see the television set, look at it for 2 to 5 minutes at a time?
1 2 3 4 5 6 7 X . . . . . (57) when in a position to see the television set, look at it for 5 minutes or longer?
1 2 3 4 5 6 7 X . . . . . (58) protest being put in a confining place (infant seat, play pen, car seat, etc)?
1 2 3 4 5 6 7 X . . . . . (59) startle at a sudden change in body position (for example, when moved suddenly)?
1 2 3 4 5 6 7 X . . . . . (60) startle to a loud or sudden noise?
1 2 3 4 5 6 7 X . . . . . (61) cry after startling?

When being held, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (62) squirm, pull away, or kick?

When placed on his/her back, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (63) fuss or protest?
1 2 3 4 5 6 7 X . . . . . (64) smile or laugh?
1 2 3 4 5 6 7 X . . . . . (65) lie quietly?
1 2 3 4 5 6 7 X . . . . . (66) wave arms and kick?
1 2 3 4 5 6 7 X . . . . . (67) squirm and/or turn body?

When the baby wanted something, how often did s/he:

1 2 3 4 5 6 7 X . . . . . (68) become upset when s/he could not get what s/he wanted?
1 2 3 4 5 6 7 X . . . . . (69) have tantrums (crying, screaming, face red, etc.) when s/he did not get what s/he wanted?

When placed in an infant seat or car seat, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (70) wave arms and kick?
1 2 3 4 5 6 7 X . . . . . (71) squirm and turn body?
1 2 3 4 5 6 7 X . . . . . (72) lie or sit quietly?
1 2 3 4 5 6 7 X . . . . . (73) show distress at first; then quiet down?

When you returned from having been away and the baby was awake, how often did s/he:

1 2 3 4 5 6 7 X . . . . . (74) smile or laugh?

When introduced to a strange person, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (75) cling to a parent?
1 2 3 4 5 6 7 X . . . . . (76) refuse to go to a stranger?
1 2 3 4 5 6 7 X . . . . . (77) hang back from the stranger?
1 2 3 4 5 6 7 X . . . . . (78) never "warm up" to the stranger?
1 2 3 4 5 6 7 X . . . . . (79) approach the stranger at once?
1 2 3 4 5 6 7 X . . . . . (80) smile or laugh?

When introduced to a dog or cat, how often did the baby:

1 2 3 4 5 6 7 X . . . . . (81) cry or show distress?
1 2 3 4 5 6 7 X . . . . . (82) smile or laugh?
1 2 3 4 5 6 7 X . . . . . (83) approach at once?

Soothing Techniques

Have you tried any of the following soothing techniques in the last two weeks? If so, how often did the method soothe the baby? Circle (X) if you did not try the technique during the LAST TWO WEEKS.

1 2 3 4 5 6 7 X . . . . . (84) rocking?
1 2 3 4 5 6 7 X . . . . . (85) holding?
1 2 3 4 5 6 7 X . . . . . (86) singing or talking?
1 2 3 4 5 6 7 X . . . . . (87) walking with the baby?
1 2 3 4 5 6 7 X . . . . . (88) giving the baby a toy?
1 2 3 4 5 6 7 X . . . . . (89) showing the baby something to look at?
1 2 3 4 5 6 7 X . . . . . (90) patting or gently rubbing some parts of the baby's body?
1 2 3 4 5 6 7 X . . . . . (91) offering food or liquid?
1 2 3 4 5 6 7 X . . . . . (92) offering baby her/his security object?
1 2 3 4 5 6 7 X . . . . . (93) changing baby's position?
1 2 3 4 5 6 7 X . . . . . (94) other (please specify) _____

Appendix C

NEO Personality Inventory

Instructions

This questionnaire contains 181 statements. Read each carefully. For each statement circle the letter or letter-pair that best corresponds to your opinion.

Circle "SD" if the statement is definitely false or you strongly disagree.
Circle "D" if the statement is mostly false or you disagree.
Circle "N" if the statement is about equally true or false, or if you cannot decide, or if you are neutral on the statement.
Circle "A" if the statement is mostly true or you agree.
Circle "SA" if the statement is definitely true or you strongly agree.

SD D N A SA 1. I really like most people I meet.

SD D N A SA 2. I have a very active imagination.

SD D N A SA 3. I often feel tense and jittery.

SD D N A SA 4. I shy away from crows of people.

SD D N A SA 5. I keep my belongings neat and clean.

SD D N A SA 6. Aesthetic and artistic concerns aren't very important to me.

SD D N A SA 7. I'm an even-tempered person.

SD D N A SA 8. I am dominant, forceful, and assertive.

SD D N A SA 9. Without strong emotions, life would be uninteresting to me.

SD D N A SA 10. I'm pretty good about pacing myself so as to get things done on time.

SD D N A SA 11. Sometimes I feel completely worthless.

SD D N A SA 12. I don't get much pleasure from chatting with people.

SD D N A SA 13. I try to keep all my thought directed along realistic lines and avoid flights of fancy.

SD D N A SA 14. I try to perform all the tasks assigned to me conscientiously.

SD D N A SA 15. I like to have a lot of people around me.

SD D N A SA 16. I like to have a lot of people around me.

SD D N A SA 17. I some times completely absorbed in music I am listening to.

SD D N A SA 18. I often get angry at the way people treat me.

SD D N A SA 19. I sometimes fail to assert myself as much as I should.

SD D N A SA 20. I have a clear set of goals and work toward them in an orderly fashion.

SD D N A SA 21. I rarely experience strong emotions.

SD D N A SA 22. I have sometimes experienced a deep sense of guilt or sinfulness.

SD D N A SA 23. I'm known as a warm and friendly person.

SD D N A SA 24. I have an active fantasy life.

SD D N A SA 25. I work hard to accomplish my goals.

SD D N A SA 26. I am easily frightened.

SD D N A SA 27. I usually prefer to do things alone.

SD D N A SA 28. Watching ballet or modern dance bores me.

SD D N A SA 29. I am not considered a touchy or temperamental person.

SD D N A SA 30. I am not a very methodical person.

SD D N A SA 31. I never hesitate to assert my rights if I feel I'm being taken advantage of.

SD D N A SA 32. How I feel about things is important to me.

SD D N A SA 33. I tend to blame myself when anything goes wrong.

SD D N A SA 34. Many people think of me as somewhat cold and distant.

SD D N A SA 35. I pay my debts promptly and in full.

SD D N A SA 36. I don't like to waste my time daydreaming.

SD D N A SA 37. I am not a worrier.

SD D N A SA 38. I really feel the need for other people if I am my myself for long.

SD D N A SA 39. Certain kinds of music have an endless fascination for me.

SD D N A SA 40. I waste a lot of time before settling down to work.

SD D N A SA 41. I am known as hot-blooded and quick-tempered.

SD D N A SA 42. In meetings, I usually let others do the talking.

SD D N A SA 43. I find it hard to get in touch with my feelings.

SD D N A SA 44. I have a low opinion of myself.

SD D N A SA 45. I try to do jobs carefully, so they won't have to be done again.

SD D N A SA 46. I really enjoy talking to people.

SD D N A SA 47. I enjoy concentrating on a fantasy or day dream and exploring all its possibilities, letting it grow and develop.

SD D N A SA 48. I often worry about thing that might go wrong.

SD D N A SA 49. I prefer small parties to large ones.

SD D N A SA 50. Sometimes I'm not as dependable or reliable as I should be.

SD D N A SA 51. Poetry has little or no effect on me.

SD D N A SA 52. It takes a lot to get me mad.

SD D N A SA 53. I have often been a leader of groups I have belonged to.

SD D N A SA 54. I experience a wide range of emotions or feelings.

SD D N A SA 55. I strive to achieve all I can.

SD D N A SA 56. Sometimes things look pretty bleak and hopeless to me.

SD D N A SA 57. I find it easy to smile and be outgoing with strangers.

SD D N A SA 58. If I feel my mind starting to drift off into daydreams, I usuallyget busy and start concentrating on some work or activity instead.

SD D N A SA 59. Frighening thoughts sometimes come into my head.

SD D N A SA 60. When I make a commitment, I can always be counted on to follow through.

SD D N A SA 61. I'd rather vacation at a popular beach than an isolated cabin in the woods.

SD D N A SA 62. I am intrigued by the patterns I find in art and nature.

SD D N A SA 63. I often get disgusted with people I have to deal with.

SD D N A SA 64. I would rather go my own way than be a leader of others.

SD D N A SA 65. I like to keep everything in its place so I know just where it is.

SD D N A SA 66. I seldom pay much attention to my feelings of the moment.

SD D N A SA 67. I rarely feel lonely or blue.

SD D N A SA 68. I have strong emotional attachments to my friends.

SD D N A SA 69. As a child I rarely enjoyed games of make believe.

SD D N A SA 70. I never seem to be able to get organized.

SD D N A SA 71. I'm seldom apprehensive about the future.

SD D N A SA 72. I prefer jobs that let me work alone without being bothered by other people.

SD D N A SA 73. Sometimes when I am reading poetry or looking at awork of

art, I feel a chill or wave of excitement.

SD D N A SA 74. People I work or associate with find me easy to get along with.

SD D N A SA 75. I am a productive person who always gets the job done.

SD D N A SA 76. Other people often look to me to make decisions.

SD D N A SA 77. I seldom notice the moods or feelings that different environments produce.

SD D N A SA 78. Too often, when things go wrong, I get discourages and feel like giving up.

SD D N A SA 79. I take a personal interest in the people I work with.

SD D N A SA 80. I tend to be somewhat fastidious or exacting.

SD D N A SA 81. I would have difficulty just letting my mind wander without control or guidance.

SD D N A SA 82. I have fewer fears than most people.

SD D N A SA 83. I would rather watch an event on television than be there in the audience.

SD D N A SA 84. I enjoy reading poetry that emphasized feelings and images more than story lines.

SD D N A SA 85. I strive for excellence in everything I do.

SD D N A SA 86. There are some people I really hate.

SD D N A SA 87. Others think of me as being modest and unassuming.

SD D N A SA 88. I find it easy to empathize—to feel myself what others are feeling.

SD D N A SA 89. I am seldom sad or depressed.

SD D N A SA 90. I am easy-going and lackadaisical.

SD D N A SA 91. I'm not the kind of person who must always be busy with something.

SD D N A SA 92. I'm pretty set in my ways.

SD D N A SA 93. I seldom feel self-conscious when I'm around people.

SD D N A SA 94. I often crave excitement.

SD D N A SA 95. I believe that most people are basically well-intentioned.

SD D N A SA 96. I often enjoy playing with theories or abstract ideas.

SD D N A SA 97. I have trouble resisting my cravings.

SD D N A SA 98. I have never literally jumped for joy.

SD D N A SA 99. I believe letting students hear controversial speakers can only confuse and mislead them.

SD D N A SA 100. I often get into arguments with my family and co-workers.

SD D N A SA 101. I feel I am capable of coping with most of my problems.

SD D N A SA 102. When I do things, I do them vigorously.

SD D N A SA 103. I think it's interesting to learn and develop new hobbies.

SD D N A SA 104. In dealing with other people, I always dread making a social blunder.

SD D N A SA 105. I go out of my way to help others if I can.

SD D N A SA 106. I have sometimes done things just for "kicks" or "thrills."

SD D N A SA 107. I enjoy solving problems or puzzles.

SD D N A SA 108. I rarely overindulge in anything.

SD D N A SA 109. I have sometimes experienced intense joy or ecstasy.

SD D N A SA 110. It wouldn't bother me if I had to punish a child or pet.

SD D N A SA 111. I believe that laws and social policies should change to reflect the needs of a changing world.

SD D N A SA 112. I often feel helpless and want someone else to solve my problems.

SD D N A SA 113. I have a leisurely style in my work and play.

SD D N A SA 114. I like to follow a strict routine in my work.

SD D N A SA 115. I think most of the people I deal with are honest and trustworthy.

SD D N A SA 116. It doesn't embarrass me too much if people ridicule and tease me.

SD D N A SA 117. I like to be where the action is.

SD D N A SA 118. I enjoy working on "mind-twister"-type puzzles.

SD D N A SA 119. When I am having my favorite foods, I tend to eat too much

SD D N A SA 120. I try to be courteous to everyone I meet.

SD D N A SA 121. I am not a cheerful optimist.

SD D N A SA 122. I believe we should look to our religious authorities for decisions on moral issues.

SD D N A SA 123. I keep a cool head in emergencies.

SD D N A SA 124. I often feel as if I'm bursting with energy.

SD D N A SA 125. Starving masses in foreign countries leave me pretty cold.

SD D N A SA 126. Once I find the right way to do something, I stick to it.

SD D N A SA 127. At times I have been so ashamed I just wanted to hide.

SD D N A SA 128. Fast cars and motorcycles have never had much appeal for me.

SD D N A SA 129. I find philosophical arguments boring.

SD D N A SA 130. Some people think I'm selfish and egotistical.

SD D N A SA 131. I have little difficulty resisting temptation.

SD D N A SA 132. Sometimes I bubble with happiness.

SD D N A SA 133. I believe that the different ideas of right and wrong that people in other societies have may be valid for them.

SD D N A SA 134. When I'm under a great deal of stress, sometimes I feel like I'm going to pieces.

SD D N A SA 135. I tend to be cynical and skeptical of others' intentions.

SD D N A SA 136. My work is likely to be slow but steady.

SD D N A SA 137. I often try new and foreign foods.

SD D N A SA 138. I often feel inferior to others.

SD D N A SA 139. I love the excitement of roller coasters.

SD D N A SA 140. I would rather cooperate with others than compete with them.

SD D N A SA 141. I sometimes lose interest when people talk about very abstract, theoretical matters.

SD D N A SA 142. I sometimes eat myself sick.

SD D N A SA 143. I don't consider myself especially "lighthearted."

SD D N A SA 144. I believe that loyalty to one's ideals and principles is more important than "open-mindedness."

SD D N A SA 145. I believe that most people will take advantage of you if you let them.

SD D N A SA 146. I can handle myself pretty well in a crisis.

SD D N A SA 147. I usually seem to be in a hurry.

SD D N A SA 148. I prefer to spend my time in familiar surroundings.

SD D N A SA 149. I feel comfortable in the presence of my bosses or other authorities.

SD D N A SA 150. Some people think of me as cold and calculating.

SD D N A SA 151. I wouldn't enjoy vacationing in Las Vegas.

SD D N A SA 152. I have little interest in speculating on the nature of the universe or the human condition.

SD D N A SA 153. I am always able to keep my feelings under control.

SD D N A SA 154. I am a cheerful, high-spirited person.

SD D N A SA 155. Most people I know like me.

SD D N A SA 156. I consider myself broad-minded and tolerant of other people's lifestyles.

SD D N A SA 157. It's often hard for me to make up my mind.

SD D N A SA 158. My life is fast-paced.

SD D N A SA 159. On a vacation, I prefer going back to a tried and true spot.

SD D N A SA 160. I'm hard-headed and tough-minded in my attitudes.

SD D N A SA 161. If I have said or done the wrong thing to someone, I can hardly bear to face them again.

SD D N A SA 162. I'm attracted to bright colors and flashy styles.

SD D N A SA 163. I have a lot of intellectual curiosity.

SD D N A SA 164. Sometimes I do things on impulse that I later regret.

SD D N A SA 165. I generally try to be thoughtful and considerate.

SD D N A SA 166. I rarely use words like "fantastic!" or "sensational!" to describe my experiences.

SD D N A SA 167. I think that if people don't know what they believe in by the time they're 25, there's something wrong with them.

SD D N A SA 168. When everything seems to be going wrong, I can still make good decisions.

SD D N A SA 169. I am a very active person.

SD D N A SA 170. If I don't like people, I let them know it.

SD D N A SA 171. I follow the same route when I go somepace.

SD D N A SA 172. When people I know do foolish things, I get embarrassed for them.

SD D N A SA 173. I tend to avoid movies that are shocking or scary.

SD D N A SA 174. I have a wide range of intellectual interests.

SD D N A SA 175. In most situations, I try to be aware of how others are thinking and feeling.

SD D N A SA 176. I seldom give in to my impulses.

SD D N A SA 177. I laugh easily.

SD D N A SA 178. I believe that the "new morality" of permissiveness is no morality at all.

SD D N A SA 179. I'm pretty stable emotionally.

SD D N A SA 180. If necessary, I am willing to manipulate people honestly and accurately.

SD D N A SA 181. I have tried to answer all these questions honestly and accurately.

Appendix D

Maternal Separation Anxiety Scale

The following statements represent matters of interest and concern to parents. Not all people feel the same way about them. Answer the statements as you are feeling now. Please read each statement carefully and mark an X in the box which most closely reflects your degree of agreement or disagreement. Try to answer all statements without skipping items or looking back. Answer all the items without discussing any of them with anyone.

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
1. I miss holding or cuddling my child when I am away from him/her.	1	2	3	4	5
2. My child is happier with me than with babysitters or teachers.	1	2	3	4	5
3. Children will be afraid in a new place without their mother.	1	2	3	4	5
4. My life wouldn't be complete without a career.	1	2	3	4	5
5. If a child is independent and outgoing, he/she will make friends easily without his/her mother's help.	1	2	3	4	5
6. When away from my child, I often wonder if his/her physical needs (dry diapers, enough to eat, etc.) are being met.	1	2	3	4	5
7. Holding and cuddling my child makes me feel so good that I really miss the physical closeness when I'm away.	1	2	3	4	5
8. I am more concerned with my child's physical safety than a babysitter or teacher.	1	2	3	4	5
9. It will be difficult for my child to adjust to someone else taking care of him/her.	1	2	3	4	5
10. I would resent my job if it meant I had to be away from my child.	1	2	3	4	5
11. My child will be benefit from group experiences since they will provide him/her social experiences that he/she could not get at home.	1	2	3	4	5

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
12. When I am away from my child, I feel lonely and miss him/her a great deal.	1	2	3	4	5
13. Only a mother just naturally knows how to comfort her distressed child.	1	2	3	4	5
14. A child is likely to get upset when he/she is left with a babysitter.	1	2	3	4	5
15. I have a systematic plan for how I'm going to build my career in the world of work.	1	2	3	4	5
16. It is good for my child to spend time away from me so that he/she can learn to deal independently with unfamiliar people and new situations.	1	2	3	4	5
17. I like to have my child close to me most of the time.	1	2	3	4	5
18. I am naturally better at keeping my child safe than any other person.	1	2	3	4	5
19. I believe that my child misses me when I have to let someone else take care of him/her for awhile.	1	2	3	4	5
20. A career or job brings me a lot of personal satisfaction.	1	2	3	4	5
21. Even through my child fusses a bit when I leave, I know he/she will be OK in a few minuates-after I'm out of sight.	1	2	3	4	5
22. I don't like to leave my child.	1	2	3	4	5
23. My child prefers to be with me more than with anyone else.	1	2	3	4	5
24. My child is afraid and sad when he/she is not with me.	1	2	3	4	5
25. I would not regret postponing my career in order to stay home with my child.	1	2	3	4	5
26. My child needs to spend time away from me in order to develop a sense of being an individual in his/her own right.	1	2	3	4	5

	Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
27. When I am separated from my child, I wonder whether he/she is crying and missing me.	1	2	3	4	5
28. I don't enjoy myself when I'm away from my child.	1	2	3	4	5
29. I worry that my child is never completely comfortable in an unfamiliar setting if I am not with him/her.	1	2	3	4	5
30. Children are very demanding and I often wish I had more time for a career.	1	2	3	4	5
31. Exposure to many different people is good for my child.	1	2	3	4	5
32. I worry when someone else cares for my child.	1	2	3	4	5
33. If I could choose between working full-time or staying home with my child, I would want to stay home.	1	2	3	4	5
34. There are times in the lives of young children when they need to be with people other than their mothers.	1	2	3	4	5
35. When away from my child, I worry about whether or not the babysitter is able to soothe-and comfort my child if he/she is lonely or upset.	1	2	3	4	5

Appendix E

CES-D SCALE

INSTRUCTIONS FOR QUESTIONS: Below is a list of the ways you might have felt or behaved. Please fill in the letter corresponding to how often you have felt this way during the past week.

A. Rarely or None of the Time (Less that 1 Day)
B. Some or a Little of the Time (1 – 2 Days)
C. Occasionally or a Moderate Amount of Time (3 – 4 Days)
D. Most or All of the Time (5 – 7 Days)

During the past week:

1. I was bothered by things that usually don't bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt that I could not shake off the blues even with help from my family or friends.
4. I felt that I was just as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt that everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had become a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.

13. I talked less than usual.

14. I felt lonely.

15. People were unfriendly.

16. I enjoyed life.

17. I had crying spells.

18. I felt sad.

19. I felt that people dislike me.

20. I could not get “going.

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